TOWARD A PHILOSOPHY OF WATER: POLITICS OF THE POLLUTION AND DAMMING ALONG THE GANGES RIVER

Elizabeth Ann McAnally, B.A.

Thesis Prepared for the Degree of

MASTER OF ARTS

UNIVERSITY OF NORTH TEXAS

May 2007

APPROVED:

Irene J. Klaver, Major Professor
George A. James, Committee Member
J. Baird Callicott, Committee Member
Robert Frodeman, Chair of Department of Philosophy and Religion Studies
Sandra L. Terrell, Dean of the Robert B. Toulouse School of Graduate Studies

McAnally, Elizabeth Ann, Toward a philosophy of water: Politics of the pollution and damming along the Ganges River. Master of Arts (Philosophy), May 2007, 81 pp., references, 60 titles.

This thesis sets out to develop a beginning of a philosophy of water by considering philosophical implications of ecological crises currently happening along the waters of the Ganges River. In my first chapter, I give a historical account of a philosophy of water. In my second chapter, I describe various natural and cultural representations of the Ganges, accounting for physical features of the river, Hindu myths and rituals involving the river, and ecological crises characterized by the pollution and damming of the river. In my third and final chapter, I look into the philosophical implications of these crises in terms of the works of the contemporary philosopher Bruno Latour.

TABLE OF CONTENTS

Page

PREFACE

This thesis attempts to articulate a philosophy of water. More specifically, I consider the relationships between natural and cultural representations of water. To look at these representations, I consider the philosophical implications of what is currently happening with a specific body of water and articulate the historical context in which this is happening, both in light of the history of philosophy and of the natural and cultural history of water.

This study focuses in particular on the Ganges River. In elucidating the philosophical implications of what is currently happening with the Ganges, I do the following three things:

1) I give a brief account of the history of philosophical articulations of water, looking at ways in which water is represented by various philosophers, including Thales, Lao Tzu, Dogen, Gaston Bachelard, and Ivan Illich.[1]

2) I describe the natural and cultural situations of the Ganges, accounting for physical features of the river, the river's mythical and ritual significance for Hinduism, and ecological crises characterized by the pollution and damming of the river.

3) Finally, calling on the works of Bruno Latour (b. 1947), I provide an account of philosophical implications of the Ganges' pollution and damming in light of the modern bifurcation of nature and culture, providing also an account of an alternative to such a bifurcation.

In doing this, I show that there are currently ecological crises wherein water is frequently represented as a mere object, and that an alternative mode of representation is possible through due process, wherein water can be represented as an actor or "thing" without being reduced to

[1] Throughout this essay, I have chosen to spell names and foreign terms without the use of diacritics, for the purposes of easy reading and consistency, as the sources upon which I am relying vary in this respect.

the nature/culture (subject/object, mind/body, means/end) bifurcation characteristic of modernity.

CHAPTER 1

A HISTORY OF A PHILOSOPHY OF WATER

Throughout its history, philosophy has tended to express questions that center on form, taking matter for granted. Irene Klaver makes this point: "earth itself has a long history of being a world not taken seriously into account: granite taken for granted."[2] Many philosophical abstractions have been articulated with little or no reference to how their formal or cultural significance relates to material or natural operations. In this chapter, I briefly explore a history of philosophical positions that explicitly take their initiative from matter, particularly from the matter of water. In other words, I am seeking a historical account of a philosophy of water—a philosophy that expresses its forms and images in relation to water. After this historical account, I describe what is currently happening with the Ganges River and with the ecological crises in which the river is involved (Chapter 2), after which I elaborate the philosophical implications of the present situation of the Ganges (Chapter 3).

By philosophy, I am not referring to any particular school of thought, but rather any wonder, reflection, meditation, or contemplation that explores and articulates some aspect of the world that otherwise might stay hidden, forgotten, or sedimented. In this historical inquiry into a philosophy of water, it is helpful to recall that philosophy takes place within many different cultures, within various discourses and practices. The history of philosophy is an extensive terrain; here, I explore a small but diverse philosophical history of water, thus leaving the elaboration of this history to the third chapter of this thesis, wherein I consider how ecological crises occurring along the Ganges River relate to modern philosophical articulations of objectivity.

---

[2] Irene J. Klaver, "Phenomenology on (the) Rocks," in *Eco-Phenomenology: Back to the Earth Itself*, eds. Charles S. Brown and Ted Toadvine (New York: SUNY Press, 2003), p. 166.

Thales: Water and the *Arche*

This historical investigation of philosophical accounts of water first considers Thales, an Ancient Greek philosopher of the sixth-century BCE. Insofar as he left no written records,[3] it is somewhat difficult to surmise his philosophy. However, secondary accounts of Thales describe him expressing wonder at the immensity and unending potency of water.[4] He found water to be the source—the *arche*—of all beings. He expresses this *arche* not as some mere formalism, but as the primordial, aquatic stuff of which everything is composed. That is, the formal structure of the *arche* is intrinsically intertwined with the materiality of water. He claimed that "the world originated in water and was sustained by water and that the earth floated on water."[5] Water for Thales constitutes everything; everything has its beginning in water, and to water everything returns.

It might seem fairly obvious to us why Thales, living on the shores of the Aegean Sea, might have been driven to make the claim that water is the *arche*. Many things that are responsible for the generation and preservation of living things—seeds, semen, amniotic fluid, blood, milk, water—are moist. Aristotle conjectures in the *Metaphysics* (983b 20) that Thales may have arrived at his opinion "from seeing that the nourishment of all things is fluid […] and because the seeds of all things have a fluid nature, while water is in turn the source of the nature of fluid things." In any case, it is evident that, by accounting for the *arche* in terms of water, Thales' philosophy took its initiative from his understanding of the aquatic stuff of water.

Lao Tzu: Water and the *Tao*

[3] P. Diamandopoulos, "Thales of Miletus," *The Encyclopedia of Philosophy*, vol. 8, 1972 ed., p. 97.
[4] Richard D. McKirahan, *Philosophy Before Socrates: An Introduction with Texts and Commentary* (Cambridge: Hackett Publishing Company, 1994), pp. 23-31.
[5] Diamandopoulos, "Thales of Miletus," p. 97.

As noted above, philosophical accounts of water can be found in many traditions, not only in Western philosophy with its roots in ancient Greece, but also in texts that express the mythic elements of a tradition. As Aristotle notes in the *Metaphysics* (982b 10-20), the lover of myth (*philomuthos*) is in some way a lover of wisdom (*philosophos*), insofar as both the *philomuthos* and the *philosophos* are engaged in the philosophic endeavor of wonder, which is to say, they both take place in what Jean-Luc Nancy calls "*surprised thought* [la pensée surprise] […] which is both a sort of rapture and an admission of ignorance."[6] This similarity between myth and philosophy is not a simple identity, for there is an important difference between them: namely, that philosophical wonder questions opinions inherited from myths, whereas mythical wonder takes the truth of these opinions for granted. Thus, although Aristotle accepts the claim that "the divine embraces the whole of nature," he accepts his mythical heritage "only to this extent," as he does not accept the mythic characterization of gods as anthropomorphic or zoomorphic (1074b 3-15).

One example of a text that expresses a sort of mythico-philosophical wonder is the *Tao Te Ching*. In this ancient Chinese text attributed to the legendary "Old Master," Lao Tzu,[7] a sense of wonderment and devotion to the way (*tao*) of the myriad things and their sources is often expressed in terms of the way of water.[8] For example, chapter 78 of the *Tao Te Ching* reads as follows:

> Nothing in the world
> is as soft and yielding as water.

[6] Jean-Luc Nancy, *Being Singular Plural*, trans. Robert D. Richardson and Anne E. O'Byrne (Stanford: Stanford University Press, 2000), pp. 165-166.

[7] Bearing in mind that the historical existence of Lao Tzu has been disputed, the date of this text's authorship is widely disputed; however, it is agreed that the *terminus a quo* is the 6th century BCE, and the *terminus ad quem* is the 3rd century BCE. *A Source Book in Chinese Philosophy*, ed. and trans. Wing-Tsit Chan (Princeton University Press, 1963), p. 137.

[8] Although there have been widely variant translations of this text, many translators (including Stephen Mitchell, D. C. Lao, John C. H. Wu, and Wing-Tsit Chan) agree that water symbolism accurately conveys the meaning of numerous tropes represented in the Chinese text.

> Yet for dissolving the hard and the inflexible,
> nothing can surpass it.
>
> The soft overcomes the hard;
> the gentle overcomes the rigid.
> Everyone knows this is true,
> but few can put it into practice. [...]
>
> True words seem paradoxical.

Within this chapter of the *Tao Te Ching,* there is wonderment at the seemingly paradoxical way in which water manifests itself. Soft and yielding as it is, water has the ability to change things that appear to be hard and inflexible. This is apparent in the phenomenon of the Grand Canyon: over a time-span of millions of years, the Colorado River has been able to gently wear down rigid rock, creating the distinguished canyon we find today. Paradoxical though it may seem, soft and gentle water possesses forceful and erosive capabilities. When we practice the way of water, we inform our embodied, material activity according to the *tao* of water, that is, according to the ability of water to effectively transform its surroundings.

Also in chapter 66 of the *Tao Te Ching*, we discover beginnings of an aquatic philosophy:

> All streams flow to the sea
> because it is lower than they are.
> Humility gives it its power.
>
> If you want to govern the people,
> you must place yourself below them.
> If you want to lead the people,
> you must learn how to follow them.

In this excerpt, we notice a reflection on the way of government expressed in terms of the seemingly paradoxical integration of humility and power evoked by the way of water. Because the sea is lower than streams, it is able to do nothing and still receive the power of the streams, for higher streams will naturally flow to the lower sea. Those who desire to govern and lead others are urged to let their actions be informed by the people they govern, as water lets its

course be informed by the channel it traverses. The actions of government are encouraged to mimic the actions of water—actions at the limits of action, where action (*wei*) is non-action (*wu-wei*). Here the very power of government is understood according to the way of the flowing stuff of water. Thus, we can see beginnings of a philosophy of water as the way of government is articulated in terms of the gentle efficacy of water. Furthermore, the gentle efficacy of water is likened to the *tao* itself in chapter 8 of the *Tao Te Ching*:

> The supreme good is like water,
> which nourishes all things without trying to.
> It is content with the low places that people disdain.
> Thus it is like the Tao.

With Lao Tzu and Thales, the fundamental source or way of the world is articulated according to the material of water, and thus not merely as a formal expression.

Dogen: Water and *Shusho*

A mythically oriented philosophy of water is also evident in the "Mountains and Waters Sutra" (*Shansui-Kyo*), written by Dogen—the thirteenth-century founder of the Soto Zen school of Japanese Buddhism. In this sutra, the very stuff of water expresses the unity of realization/enlightenment (*sho*) and the everyday practice (*shu*) that seeks it, such that all practice or realization is practice-realization (*shusho*).[9] Throughout section 16, Dogen writes that while most humans only experience water as continuously flowing, it is not the case that all beings see water in this same way. For instance, the dragons and fish living within the sea do not experience their everyday home as something flowing, constantly moving and changing; on the contrary, they see water as an abode, a palace, a stable structured dwelling.

[9] *Dogen*, "Mountains and Waters Sutra," *Moon in a Dewdrop: Writings of Zen Master Dogen*, ed. Kazuaki Tanahashi (New York: North Point Press, 1985), p. 97-107.

By expressing the different ways that water is experienced in everyday practice, Dogen helps us to understand that water flows and does not flow. Seeing the relativity of the flowing and not-flowing of water means realizing that no form belongs inherently to water as such. As the material of water is informed according to the everyday practices of the informer, it is empty of any inherently existing form. The various ways in which water appears in everyday practice lead Dogen to express the emptiness of water, meaning that there is no water apart from the various forms given in everyday practice. Thus, the everyday experience of the forms of water is the same as the realization of the emptiness of water. A philosophy of water appears here in Dogen's sutra insofar as the unity of practice and realization is expressed according to relative experiences of the stuff of water.

Gaston Bachelard: Water and Imagination

Now that we have seen a philosophical insights into water in ancient Greece, ancient China, and thirteenth-century Japan, I wish to turn our attention to the work of Gaston Bachelard entitled *Water and Dreams: An Essay on the Imagination of Matter*. In this book, Bachelard investigates how the water of the material world is one of the elements from which imagination gathers its images. In other words, Bachelard investigates water in terms of "material imagination" and not merely "formal imagination."[10] For instance, meditating on water does not merely affect the forms of the imagination but cultivates a "water mind-set," a mind-set that enables us to participate more fully in the elemental material of water, the "aquatic reality of nature."[11]

[10] Gaston Bachelard, *Water and Dreams: An Essay on the Imagination of Matter*, trans. Edith R. Farrell (Dallas: The Dallas Institute of Humanities and Culture, 1983), p. 1.
[11] Ibid., p. 5.

Bachelard comments in his first chapter that humans try to understand themselves in the way of Narcissus, by exploring their aquatic reflections.[12] The image of Narcissus is an image of a human being knowing, loving, and engaging its own depths by entering into the aquatic depths of its reflection. This image of reflection does not merely express some formal, psychological structure; it also expresses a materiality of water, wherein an embodied being fathoms its own embodied thickness. The way that our imagination informs different moments of self-reflection is initiated by our familiarity (or lack thereof) with the material depths of water. Narcissus loves the image of himself that appears reflected in still water. Water, unlike a mirror, allows Narcissus to participate in his image; it provides the depth and continuity that a static and hard mirror is unable to offer, as a mirror remains a superficial reflection, a barrier that does not allow the self to penetrate inside itself in reflection. Only water allows Narcissus to enter into his own image and fathom what lies beneath the surface.

Bachelard also shows that material imagination sees water as an archetype of purity, having the power to cleanse both matter and form.[13] While it is evident that water can clean a dirty body, it is often forgotten that water has the power to purify an impure soul. The Christian may say that the ritual performance of baptism purifies the soul; the historian of religion may talk about water as a symbol pointing to purification. However, Bachelard argues that the purifying power of water *also* lies within the very liquid stuff of water. Thus, whether in a baptismal ceremony, in the Fountain of Youth, in the Exodus of the Israelites, or in the many rituals performed in the Ganges River, water has the power to purify—to bring one out of original sin, out of old age, out of slavery, or out of any sort of dirt or destitution.

[12] Bachelard, "Clear Waters, Springtime Water and Running Waters: The Objective Conditions for Narcissism," in *Water and Dreams*, pp. 19-43.
[13] Bachelard, "Purity and Purification: Water's Morality," in *Water and Dreams*, pp. 133-57.

Ivan Illich: Water and H_2O

Bachelard's general project of wondering at the gathering of matter in the forms of the imagination is taken up by Ivan Illich in his book *H_2O and the Waters of Forgetfulness*. Integral to Illich's investigation, wherein he looks specifically to the relation between urban water and urban space, is his distinction between water and H_2O. Following Bachelard, water for Illich is a living, archetypal fluid, a fertile material that is informed by our imagination and dreams. Having the ability to both purify forms and clean matter, "water communicates its purity by touching or waking the substance of a thing and it cleans by washing dirt from its surface."[14] On the other hand, H_2O is water that has been abstracted from its materiality and reduced to a chemically constituted "fluid with which archetypal waters cannot be mixed."[15]

Unlike living, archetypal water, which has the power to purify and cleanse, H_2O needs to be cleansed of the diseases and pollutants that often accumulate in it, and purified of its abstraction from the material of archetypal waters. The transformation of water into H_2O has brought water into the service of industrial development and technological progress, which has saturated water with the very dirt and grime that it used to be able to clean, and which has abstracted the chemical form of water from the heterogeneous mixture of its living flow. Thus, in modern articulations of water as H_2O, water has been forgotten, abandoned in favor of a formula, a technologized, domesticated abstraction. Instead of letting the materiality of water inform our imagination, modern civilization lets scientific information manipulate and control water.

By wondering at the differences between living water and abstract H_2O, Illich shows us the possibility of a philosophy of water in urban spaces. Both he and Bachelard contemplate the

[14] Ivan Illich, *H_2O and the Waters of Forgetfulness* (Berkeley: Heyday Books, 1985), p. 27.
[15] Ibid., p. 7.

materiality of water as it initiates various forms of our imagination, whether these forms are appropriated by technology, science, poetry, myth, or other modes of expression. Thus, we can see a philosophy of water wherever someone inquires into the surprising materiality of aquatic images.

Conclusions

In this chapter, I have discussed the materiality of aquatic images appearing as *arche*, *tao*, *shusho*, self-reflection, the archetypal cleanser and purifier, and H_2O. In other words, water can initiate a philosophy of water, which reflects on any image and attempts to articulate its place with water. In this sense, a philosophy of water makes it possible to engage in the wondrous surprise of water, rather than taking water for granted. So that I may further elaborate on the philosophical implications of water, I now consider what is currently happening with the Ganges and with the ecological crises in which this river is involved. By providing the following empirical case study of the Ganges, I circumscribe a context through which philosophical ramifications of water can be seen.

CHAPTER 2

THE INTERSECTION OF RELIGION AND ECOLOGY IN THE WATERS OF THE GANGES

This chapter inquires into the intersection of nature and culture by focusing on the Ganges (*Ganga* or *Ganga Ma*, as the river is called in India), which is considered by many to be one of the world's most sacred and yet one of the world's most polluted rivers. Within this chapter, I focus on three specific issues concerning this river: 1) a brief look at the physical features of the Ganges, 2) a description of various Hindu[16] myths and rituals that express the sacred power of the Ganges, and 3) an overview of some ecological crises occurring along the Ganges, particularly with regards to the pollution of the river and the development of the Tehri Dam, considering numerous responses to these ecological problems. Throughout this chapter, attention is given to the intersection of science, politics, and religion as manifested within current issues around the Ganges.

A Brief Sketch of the Physical Look of the Ganges

The Ganges River, which flows through northern India and Bangladesh, is approximately 2525 km (1569 mi) long (for maps, see Appendix). This river is the largest water body of India that is perennial, which is to say, the Ganges flows throughout the whole year—before, during, and after the monsoons.[17] The river is fed by the melting of the snows of the Himalayas,

[16] By referring to "Hinduism" within this essay, I agree with Mawdsley that this term denotes a "diversity of beliefs and practices across India and beyond," and that its "religion, culture and social form inextricably permeate each other." Emma Mawdsley, "The Abuse of Religion and Ecology: The Vishva Hindu Parishad and Tehri Dam," *Worldviews: Environment, Culture, Religion* 9, no. 1 (2005): 18, fn. 2. Furthermore, as this traditional Hindu mantra relays, "Hinduism is more than a religion; it is a way of life." Vasudha Narayanan, "Water, Wood, and Wisdom: Ecological Perspectives from the Hindu Traditions," *Daedalus* 130, no. 4 (2001): 179. http://www.amacad.org/publications/fall2001/narayanan.aspx# [accessed 1/31/06]

[17] N.C. Ghose and C.B. Sharma, *Pollution of Ganga River: Ecology of Mid-Ganga Basin* (New Delhi: Ashish Publishing House, 1989), 11.

primarily by the twenty-mile long by three-mile wide ice mountain called the Gangotri Glacier.[18] One key glacier within this ice mountain is considered to be the true source of the Ganges' perennial flows: Gomukh, a giant ice cave located at a height of 13,500 feet in the southern slopes of the Uttaranchal Himalayas.[19] The Gangotri Glacier supplies the waters of the Alakananda and the Bhagirathi, the two main tributaries of the Ganges, which flow through the pilgrimage towns of Rishikesh and Haridwar, and meet in northern India at Devaprayag. It is at the confluence of these two tributaries that the Ganges begins proper.[20] However, it is important to note that the boundaries that mark the Ganges proper are somewhat fuzzy, as many people living along the tributaries and distributaries of the Ganges consider these streams to be part of the Ganges.

After Devaprayag, the Ganges flows down the Himalayas into the Ganges Valley or Gangetic Plains of northern India, being fed by such tributaries as the Ghaghara (Gogra), Gandak, Son, Gomti, Chambal, Kosi, and Yamuna. As Kelly Alley notes, "The Ganga River and its tributaries drain more than one million square kilometers of China, Nepal, India, and Bangladesh. In India, the Ganga basin, which includes the Yamuna subbasin, covers over 861,000 square kilometers, or one-fourth of India's geographical area."[21] Within the Gangetic Plains, the river flows through such cities of great religious and industrial importance as Bithur, Kampur, Allahabad, Sarnath, Banaras (Varanasi), Patna, Mayapur, and Kolkata (Calcutta). In looking at the city of Patna, Sinha notes that the effects of the snow melting on the Himalayas

[18] Steven G. Darian, *The Ganges in Myth and History* (Honolulu: The University Press of Hawaii, 1978), p. 3.
[19] Ibid., pp. 9, 13.
[20] Ghose and Sharma, *Pollution of Ganga River*, p. 15. Darian, *The Ganges in Myth and History*, pp. 3, 8.
[21] Kelly D. Alley, *On the Banks of the Ganga: When Wastewater Meets a Sacred River* (Ann Arbor: University of Michigan Press, 2002), p. 50.

and the monsoon rains combine and extend the breadth of the Ganges to several miles, whereas the Ganges is roughly 200 meters wide during dry seasons.[22]

When reaching the plains of Bangladesh, the Ganges becomes an intricate network of distributaries, forming a fertile delta at the Bay of Bengal. Within the delta, the Ganges is joined by the Jamuna branch of the southward-flowing Brahmaputra River and by the Meghna River, making this delta region the largest in the world (a stretch of approximately several hundred miles across the Indian border to Chittagong, Bangladesh).[23] The delta of the Ganges is sometimes called the Ganges-Brahmaputra River Delta, as well as the Hooghly and the Padma (the names of its major distributaries). Also known as the Green Delta, this region contains some of the world's "most fertile and vegetated alluvial land," most famous for cultivating over 85% of the world's jute and hemp fibers.[24] The delta also constitutes the largest mangrove forest in the world, the Sunderbans, which is the sanctuary of the Royal Bengal Tiger.

The river Ganges is fast-flowing and shallow, grayish in color, carrying a large quantity of sediment from the Himalayas and the Ganges Valley.[25] Researchers have confirmed that the Ganges, as compared with other major rivers, carries one of the largest quantities of sediment, varying seasonally between 1085 million and 2400 million tons.[26] Factors of this high sediment load include the geology, topography, and climate of the drainage basin, particularly involving the high erosion rate of the Himalayas, as well as the low subsidence rate of the basin floor.[27] This massive amount of silt helps to gradually increase the size of the delta, dividing the river

---

[22] Upendra Kumar Sinha, *Ganga Pollution and Health Hazard* (New Delhi: Inter-India Publication, 1986), p. 13.
[23] Diane Raines Ward, *Water Wars: Drought, Flood, Folly, and the Politics of Thirst* (New York: Riverhead Books, 2002), p. 244, n. 136. Sandra Postel and Brian Richter, *Rivers for Life: Managing Water for People and Nature* (Washington: Island Press, 2003), p. 26. "Ganges Delta: Most Fertile Land for Growing Jute, Kenaf, Roselle Hemp Fibers." 2006. http://www.tradezone.com/tradesites/ganges_delta.html [accessed 8/25/06]
[24] "Ganges Delta."
[25] Alley, *On the Banks of the Ganga*, p. 55. Darian, *The Ganges in Myth and History*, p. 135.
[26] Ghose and Sharma, *Pollution of Ganga River*, pp. 12, 41. Only two rivers, the Amazon and the Yellow, surpass the Ganges with respect to transporting sediment. Ibid., p. 41.
[27] Ibid., p. 12.

into more distributaries and building up more land within the Bay of Bengal, as seen with the appearance of New Moore Island (also called Purbasha or South Talpatty Island) in the early 1970s.[28] Furthermore, the high silt concentration of the Ganges colors the Bay of Bengal a muddy hue for approximately 500 km (311 mi) into the sea.[29] That the Ganges carries such a great amount of sediment plays a critical role when considering the effects of sediment on the damming of the river. I return to this issue later in this chapter.

The Ganges in Myths and Rituals

For many Hindus, the Ganges, like much water, is considered to be sacred. Indeed, David Kinsley points out that, from the perspective of many Hindus, the majority of Indian rivers are viewed as goddesses.[30] Steven Darian notes that many Hindus believe that "Ganga is the holiest" of all the sacred waters found throughout India.[31] This river, which has a large number of pilgrimage sites along its banks, plays an esteemed role in such Hindu religious literature as the Vedas, the Puranas, and the Epics. Furthermore, the holiness of the river is suggested in the 108 sacred names with which many Hindus speak of and to the Ganges.[32] It is also customary to invoke the name of the Ganges during judicial settings in India, as "people would swear an oath by the sanctity of the river."[33]

---

[28] Darian, *The Ganges in Myth and History*, p. 135. Ghose and Sharma, *Pollution of Ganga River*, p. 12.
[29] Mukerjee, Amitabha. "The River Ganga (Ganges)." 1998. http://www.cse.iitk.ac.in/~amit/other/ganges.html [accessed 8/8/06]
[30] David Kinsley, "Learning the Story of the Land: Reflections on the Liberating Power of Geography and Pilgrimage in the Hindu Tradition," in *Purifying the Earthly Body of God: Religion and Ecology in Hindu India*, ed. Lance E. Nelson (Albany: State University of New York Press, 1998), p. 231.
[31] Darian, *The Ganges in Myth and History*, p. 125.
[32] Vandana Shiva, *Water Wars: Privatization, Pollution, and Profit* (Cambridge: South End Press, 2002), pp. 141-146.
[33] Darian, *The Ganges in Myth and History*, pp. 152-153. However, this practice has become problematic, as Hinduism has began looking at itself in light of the Judeo-Christian perspective that would consider such an oath idolatrous. As one report given by the *Calcutta Journal* in 1820 testifies, at a hearing of the Supreme Court, "A native […] refused to take the oath in the usual manner, viz., on the water of the Gunga. He declared himself […] not a believer in the imagined sanctity of this river." Qtd. in Darian, *The Ganges in Myth and History*, p. 153. Instead of taking the oath on the water of the Ganges river, this native requested to be sworn in by the *Vedas*, in the

In this chapter, I provide an account of the sacred or divine character of the river Ganges by discussing various myths that have been commonly told throughout Hindu history. Furthermore, bearing in mind that myth is but one of what Ninian Smart calls "elements or *dimensions*" of religion traditions, I discuss the sacred character of the Ganges for Hinduism by considering its mythic dimension along with the activities that constitute its ritual dimension.[34] The river Ganges is viewed as sacred or divine primarily in two respects: 1) the river has the generative power of a mother, and 2) it has the power to purify. This is not to say that these are the only respects in which the river Ganges appears sacred. I consider these two respects because they bear relevance to some of the ecological issues discussed in the next sections of this chapter. Moreover, the purifying and regenerating powers are likely to overlap. Indeed, as Mircea Eliade argues, in any religious complex, waters exhibit these qualities simultaneously: "they are at once purifying and regenerating."[35] However, in asserting that these powers overlap, one need not follow Eliade in arguing that these powers happen "at once" in all water symbolism.

Water is often seen as generating life and providing nourishment that supports the growth of living things. It is said that the Ganges river has "generative powers: giving birth, restoring life, conferring immortality."[36] Many people living in India ritually celebrate the river Ganges' generative powers of nourishing crops. For example, farmers currently living in Bihar perform certain actions at the beginning of each plowing season to guarantee a good harvest, placing a pot of Ganges water in a special place in the fields before the seeds are sown.[37] Also in Bengal,

---

same way that a European would take an oath on the Bible. In other words, this Hindu thought of himself as a believer in the *Vedas* and not of the water of the Ganges. Thus, this example displays a turn from a revelatory power attributed to the river to a revelatory power gained through reading scripture.

[34] Ninian Smart, *The Phenomenon of Religion* (New York: Seabury Press, 1973), p. 42-43.

[35] Eliade, *The Sacred and the Profane*, p. 131.

[36] Darian, *The Ganges in Myth and History*, p. 31.

[37] Ibid., p. 37.

where the Ganges is the primary source of water for the crops, unbaked clay statues of the goddess Ganga are thrown into the river following ceremonies in thanks and gratitude to the Ganges for nourishing crops.[38]

In light of the vital importance of the Ganges for life and wealth (further evident in Bengal with the central role of the Ganges in facilitating transportation), the river Ganges is often called *Ganga Ma* or *Ganga Mata*, meaning "Mother Ganges." According to one myth recounted by Darian, the goddess Ganga is a mother who once gave birth to eight children.[39] The story begins as the mortal king Shantanu saw an extremely beautiful woman and wanted to marry her. This woman (who was the goddess Ganga in disguise) agreed upon the marriage on the condition that the king would promise to not question her actions. The king gladly agreed, and shortly after they married, his wife gave birth to their first child. She immediately took the baby to the river nearby and drowned it. This distressed the king greatly, but he did not question this act, keeping to his engagement promise. His wife gave birth to other children in the years to come, and continued to drown each child at its birth. When the eighth child was born, the king begged his wife to have mercy on him and allow the child to live and not be drowned like the others.

The beautiful woman then immediately revealed herself as the goddess Ganga and explained that each of these children were Vasus, i.e., celestials cursed to appear as humans. By killing them at their births, Ganga explained, she had helped them to return their rightful abode in heaven. Ganga agreed upon the king's request to allow the eighth child to live with the king, but then she herself left the king, as he had broken their engagement promise. Through this myth, it is evident that "Ganga, as a manifestation of the archetypal female, fully retains her

[38] Ibid., p. 134.
[39] Ibid., pp. 31-32.

maternal nature."[40] This myth also exemplifies the paradoxical nature of the river, in that the same waters that give birth also bring death: nourishing waters are flooding waters. In the same light, the death that the Ganges brings in the earthly realm is simultaneously life in the heavenly realm, as it is through death that the human babies born to Mother Ganga are transported to heaven to regain their celestial character.

Vasudha Narayanan describes one popular myth within the oral tradition of Hinduism that elucidates the purity and purificatory power of the Ganga.[41] The story tells of a king who often slept on the banks of the Ganges River. Sometimes when awakening in the middle of the night, he noticed very dirty women entering into the Ganges for a bath. When the women came out of the water, they were impeccably clean but then would soon disappear. The king was curious about the strange identity of these women, and when he was finally able to ask them, they said that they were embodied manifestations of the rivers of India. They went on to tell him that when humans daily came to bathe in the rivers, their sins were absolved by the waters. The rivers themselves then needed to be purified of the sins they absorbed, and so they would come (in the form of women) to bathe in the Ganga, who is the grand purifier. Although some variations of this story admit that the Ganga herself must go somewhere to be purified, it is for the most part assumed that this river is ultimately pure and needs no purification.

In seeking Ganga's purifying power, many people ritually bathe in her waters. Many Hindus believe that immersing oneself in the waters of the Ganges has the purificatory power of removing all sins. "A dip in her sacred waters purifies devotees of sin and physically connects them with a transcendent, heavenly sphere."[42]

---

[40] Ibid., p. 74.
[41] Narayanan, "Water, Wood, and Wisdom," pp. 191-192.
[42] Kinsley, "Learning the Story of the Land," p. 232.

Perhaps one of the oldest and best known myths concerning the sacred origin of the purifying waters of the Ganges involves the story of Ganga's descent to earth through the hair of Shiva. As Vandana Shiva recounts,[43] this myth begins as King Sagar, the ocean king of Ayodhya, was planning on holding a horse sacrifice to show his supremacy for having killed the demons of the earth. The god Indra was afraid of losing his powerful status as the supreme ruler of the kingdom of gods, and so he stole Sagar's horse, tying it to the ashram of Kapil, a great sage who was deeply meditating at the time. King Sagar soon noticed that his horse was missing and sent his 60,000 sons to find it. When the sons found the horse at Kapil's ashram, they planned to attack the sage in order to take back the horse. However, the meditating sage opened his eyes before they could attack, and he was so angry to find the sons plotting against him that he burned them all to ashes.

The grandson of King Sagar, Anshuman, was later able to regain the horse from Kapil. Anshuman told Sagar about how Kapil's anger reduced the 60,000 sons to ashes, and how his sons could make their journey to their rightful place in heaven only if the river Ganges could come down from heaven and purify the sons' ashes with her water. Neither Anshuman nor his son Dilip could persuade the Ganges down from heaven, but Anshuman's grandson King Bhagirath continued to pursue their attempts through meditation.

One day the goddess Ganges finally appeared to King Bhagirath as he was meditating at Gangotri. She told him that she was very hesitant to come down to earth, being that the great flow of her waters would be very destructive without the help of another to slow her down. Ganga agreed that she could fulfill the king's request if he could find a way for her waters to not wash away everything in her path. So King Bhagirath went to Lord Shiva and explained the problem. Shiva understood and agreed to help break Ganga's mighty fall, allowing her to trickle

[43] Shiva, *Water Wars*, pp. 132-133.

slowly to earth by guiding her flow through his matted locks of hair, manifest as the forests of the Himalayas.[44] The river Ganges then flowed to the place where the ashes of King Sagar's sons were heaped, and she purified their souls with the touch of her waters, allowing them to make their way up to the heavens.

In another myth wherein Ganga is the pure divine liquid that flows down from heaven, Vishnu became manifest as a dwarf child in order to regain heaven from Bali, a demon (*asura*) who had taken heaven from the god Indra. Vishnu, incarnated as a dwarf, asked Bali to give him a gift marked off by three strides. When Bali agreed, Vishnu transformed from a dwarf to a giant. His first step reached around the earth, and his second step reached up to the heavens. Finally, his third step penetrated "the roof of the universe, intruding into Satyaloka, Brahma's Realm of Truth" and from this fissure flowed the holy Ganga, "poured out by Brahma in reverence for the mighty deed of Vishnu."[45] Thus, the river Ganges was issued forth from a breaking through, a breach, a tear in the fabric of heaven.

The myth of Ganga as liquid from heaven is similar to another myth, where Ganga is the pure liquid that flows from Vishnu's toe. This myth begins when Narada, the messenger of the gods, was walking throughout the Himalayas, singing lovely music with his veena.[46] On his travels, he met a group of very attractive people who were each missing various body parts. When he asked them how they became disfigured, they tell him that they were Ragas and Raginis (the divine spirits of music), and that his singing—although lovely to humans—hurt them so badly as to make them lose parts of their bodies. This greatly saddened Narada, and he wanted to do whatever he could to make their bodies whole again. The Ragas and Raginis said

---

[44] Anil Agarwal, "Human-Nature Interactions in a Third World Country," in *Ethical Perspectives on Environmental Issues in India*, ed. George A. James (New Delhi: A.P.H. Publishing Corporation, 1999), p. 71.
[45] Darian, *The Ganges in Myth and History*, p. 30.
[46] A veena or vina is a seven-string Indian instrument, somewhat similar to a sitar, lute, or guitar, with a long fretted fingerboard and gourds at each end that resonate when the strings are plucked.

that they needed to hear the perfect music of Shiva to be restored. Shiva agreed when Narada asked him to sing in front of the divine audience of Brahma and Vishnu. Shiva's perfect music not only healed the bodies of the Ragas and Raginis, but it also absorbed Vishnu to such an extent that the god melted, and "the stream of liquid that flowed from his toe became the Ganga and this explains the purity of her waters."[47] Within this myth, we see a god transformed by means of the power of music into a river. The water of the Ganges becomes manifest as the ecstasy of music.

Being divine itself, the river is believed to have the ability to connect humans with divinities. Drinking Ganges water to embody this connection is a ritual performed at every possible chance. For many Hindus, the water of the Ganges is considered to be something like a magical tonic or elixir, helping one attain longevity and even immortality. As Walker notes, "Taken daily it confers immortality."[48] The power of the Ganga to confer immortality is expressed in one of the names of Ganga, *amrita* (*a*—not; *mri*—to die), which is often translated as the "nectar of immortality."[49] The Epics and Puranas recount how *amrita* was extracted as the gods churned the "celestial ocean of milk."[50] As the Hindu epic *Mahabharata* proclaims, "As amrita is to the gods, so Ganga water is to the world of men."[51]

Many people throughout history (including the great sixteenth-century Moghul king Akbar) have considered the Ganges to be "the water of immortality" and would drink Ganges

---

[47] Stephen Alter, *Sacred Waters: A Pilgrimage up the Ganges Rivers to the Source of Hindu Culture* (New York: Harcourt, Inc., 2001), p. 171.
[48] Benjamin Walker, "Ganges," in *The Hindu World: An Encyclopedic Survey of Hinduism*, vol. 1 (New York: Frederick A. Praeger, Inc., 1968), pp. 379-380.
[49] Judith M. Tyberg, *The Language of the Gods: Sanskrit Keys to India's Wisdom* (Los Angeles: East-West Cultural Centre, 1976), p. 211.
[50] Benjamin Walker, "Nectar," in *The Hindu World: An Encyclopedic Survey of Hinduism*, vol. 2 (New York: Frederick A. Praeger, Inc., 1968), pp. 131-32.
[51] Qtd. in Darian, *The Ganges in Myth and History*, p. 67.

water while at home as well as when traveling.[52] In addition to attempts to drink Ganga water daily, Mehta points out that it is particularly important in Hindu traditions to place Ganga water in the mouths of young children and those dying.[53] Ganges water is also the esteemed drink of certain initiation ceremonies. For example, in Bengal during an initiation rite called the sacred thread ceremony (*upanayana*), a young man remains indoors for three days, drinking only Ganges water and eating only bread.[54] Immersion (*abhisheka*) in the Ganges is also performed at this ceremony when it is possible.

Furthermore, the water of the Ganges is a highly cherished wedding drink at Hindu marriages. Darian notes that Jean Tavernier, a French jeweler in the seventeenth century, said that Ganges water is sometimes carried many miles from its riverbed by Brahmins (Vedic priests) "in earthen vessels glazed inside, which the Grand Brahmin has placed his seal upon"; the water is highly taxed, and "for each of the guests three or four cupfuls are poured out and the more of it the bridegroom gives…so is he esteemed the more generous and magnificent."[55]

Ganga water is considered to be particularly powerful to physically heal those who are sick. As Walker notes, "Applied to various parts of the body while performing a penance, by standing in the river on one leg from one new moon to the next, it can cure diseases of those parts and the organs."[56] Many often bring their sick loved ones to the banks of the Ganges and wet them with water everyday until they are healed. When the sick cannot travel to the Ganges, their family members will bring Ganges water back home to them to drink or bathe in.[57]

---

[52] Darian, *The Ganges in Myth and History*, p. 11.
[53] Qtd in David L. Gosling, *Religion and Ecology in India and Southeast Asia* (London: Routledge, 2001), p. 151.
[54] Darian, *The Ganges in Myth and History*, pp. 14, 151-52.
[55] Qtd. in Darian, *The Ganges in Myth and History*, pp. 11-12.
[56] Walker, "Ganges," in *The Hindu World*, vol. 1, p. 380.
[57] Darian, *The Ganges in Myth and History*, p. 152.

As with sickness, the Ganges plays an important role in ritual practices surrounding death. As noted above, it is a Hindu custom to give Ganga water to those on their death bed.[58] Darian points out that religious texts within the Hindu tradition called for the use of Ganges water for funeral services at least by the fourth century A.D.[59] Mourners are instructed to cremate their deceased relatives and scatter their ashes on the Ganges.[60] This action is understood to ensure that the dead achieve "entry into bliss."[61] Following this, mourners are to bathe themselves in the river and be shaved by a barber on the bank of the river. "If the deceased is a parent, a man will also have his head shaved, a sign of ultimate separation, of dying to the world."[62] The fourth day following the funeral ceremony, mourners are to gather the deceased's bones and then throw them into Ganges water.[63] Even voluntarily drowning in the sacred river promises the devotee entry into paradise.[64]

In consigning the remains of one's deceased relatives into the water of the Ganges, "the Ganges transports them to the land of the ancestors."[65] This is depicted in the myth wherein the Ganges purified the ashes of the 60,000 sons of Sagara, allowing them to finally enter the heavenly realm. This is also shown in the myth wherein the goddess Ganga drowned the Vasus who had been incarnated as children so that they could return to their heavenly abode.

As the above discussion has indicated, myths and rituals articulating the sacred character of the Ganges are widespread throughout India. From myths of Ganga's maternality and purification, as well as from rituals involving the waters of the Ganges for drinking, bathing, and

[58] Gosling, *Religion and Ecology in India and Southeast Asia*, p. 151
[59] Darian, *The Ganges in Myth and History*, p. 61.
[60] Ibid., pp. 14, 61.
[61] Walker, "Ganges," in *The Hindu World*, vol. 1, p. 380.
[62] Darian, *The Ganges in Myth and History*, p. 152.
[63] Ibid., p. 61.
[64] Walker, "Ganges," in *The Hindu World*, vol. 1, p. 380.
[65] Kinsley, "Learning the Story of the Land, p. 232.

departing with the deceased, it is evident that the water of the Ganges functions in a way that is "cleansing (both physically and morally) and transformative."[66]

Ecological Crises of the Ganges

Now that some of the religious myths and rituals that surround the Ganges have been elucidated, I consider a sample of ecological crises associated with the sacred river. The Ganges has become a site of ecological degradation, most notably perhaps with the pollution and damming of the river. Before I elaborate on these two aspects of the ecological crises occurring along the river, I first briefly elucidate other ecological problems associated with the river.

One such problem relates to the forests of the Himalayan mountains. In recent decades, the fragile ecosystems of the Ganges' watersheds have become threatened, as the Himalayan forests have undergone a great deal of deforestation due to the expansion of commercial forestry in the area.[67] This ongoing deforestation of the Himalayan foothills (in addition to the complete deforestation of the Gangetic Plains) has caused the watersheds of the Ganges to erode more and thus has increased the amount of sediment that the river carries.[68]

The river Ganges is also being immensely affected due to climate change. The melting rate of the Gangotri Glacier, the source of the Ganges, has doubled since 1970, largely because of the increased emission of green house gases.[69] Local people living in the area say that the glacier has been receding five meters per year.[70] As glaciologist Rajesh Kumar from Jawaharlal Nehru University in Delhi argues, "Gangotri is not only receding, but the dimensions of the

---

[66] Ibid., p. 233.
[67] George A. James, "Tehri Dam," in *The Encyclopedia of Religion and Nature*, eds. Bron R. Taylor *et al*. 2 vols. (London: Thoemmes Continuum, 2005), p. 1626.
[68] Alley, *On the Banks of the Ganga*, p. 50.
[69] Shubhranshu Choudhary, "The Ganga Could Run Dry…" *The Hindu*, 2005. http://www.hindu.com/mag/2005/10/09/stories/2005100900130200.htm [accessed 9/1/06]
[70] Shiva, *Water Wars*, p. 48.

glacier have decreased considerably in the last few years. I fear if this continues, we may end up with the Ganges being a monsoon-fed river by the end of this century."[71]

The Gomukh Glacier within the Gangotri Glacier is also being affected by India's so-called "religio-adventure tourism circuit," as more than 100,000 people every year are now taking pilgrimages to this holy place. A majority of them return home with a pot of sacred Ganges water, leaving behind mounds of plastic bottles and old clothes after taking an austere bath in the glacier.[72]

Moreover, Sandra Postel of the Global Water Policy Project points out that for significant portions of the year, the Ganges does not reach the Bay of Bengal on account of dams, diversions, and overtapping of aquifers.[73] This in turn is placing the Ganges-Brahmaputra delta in "a serious state of ecological decline," because the amount of freshwater flowing into the Bay is decreasing and is thus allowing saltwater to come across the western part of the delta, causing great damage to fish habitat and mangroves (a precarious situation for the threatened Royal Bengal Tigers living in the Sunderbans), as well as jeopardizing the subsistence livelihoods of approximately thirty-five million Bangladeshis.[74] The river not only fails to flow through its delta to the Bay of Bengal for large stretches of time, but it also does not flow into Bangladesh during the dry season due to serious diversions upstream.[75]

---

[71] Qtd. in Choudhary, "The Ganga Could Run Dry…"
[72] Choudhary, "The Ganga Could Run Dry…"
[73] Similarly, four other large rivers in Asia—the Indus, the Yellow, the Amu Dar'ya, and Syr Dar'ya—as well as the Nile and the Colorado River, are not flowing to the sea throughout the entire year as they have done traditionally. Maude Barlow and Tony Clark, *Blue Gold: The Fight to Stop the Corporate Theft of the World's Water* (New York: The New Press, 2002), p. 9; Postel and Richter, *Rivers for Life*, p. 2.
[74] Postel and Richter, *Rivers for Life*, p. 26. Cf. Sandra Postel, *Pillar of Sand: Can the Irrigation Miracle Last?* (New York: W.W. Norton and Company, 1999), pp. 73, 157-58. Not only does the flow of the Ganges play a crucial role in the habitat of the threatened Royal Bengal Tigers; the Ganges is also home to one of the world's five true river dolphins (i.e., dolphins that never swim in the sea), which is an endangered species.
[75] Postel, *Pillar of Sand*, p. 73.

The Pollution of the Ganges

Perhaps one of the most striking and devastating phenomena of ecological degradation occurring along the river Ganges relates to pollution. The Ganges has become extremely polluted as the processes of industrialization and urbanization have occurred. Although many consider the Ganges to have a purity that reflects its sacred power, the Ganges is said to be "a biological nightmare" on account of "the indiscriminate discharges of municipal sewage and industrial effluent generated from 48 cities and 66 large towns located on its banks."[76]

The main sources of pollution within the Ganges, as reported by the Central Pollution Control Board, are "urban liquid waste (sewage/sullage), industrial liquid waste, surface runoff from solid waste landfills and dump sites, and solids and liquids from practices such as bathing of cattle and immersing dead bodies in the river."[77] Approximately thirty percent of pollution is industrial, while the other seventy percent is primarily municipal.[78] Concerning municipal waste, fecal coliform counts have entered into "crisis levels."[79]

As M. C. Mehta, an environmental lawyer in India, argues, "Many parts of the Ganges river are totally dead; the water is so polluted that it is unfit for drinking, washing, bathing or irrigational purposes."[80] In fact, the pollution is so serious that the river Ganges caught on fire at least on one occasion at the holy city of Haridwar. Mehta recounts, "Two factories were discharging effluents into the Ganges, and the effluents were so toxic that, in 1984, somebody put a lit match into the river by chance and a whole one-kilometer stretch of the Ganges caught

---

[76] Ghose and Sharma, *Pollution of Ganga River*, p. 36.
[77] Alley, *On the Banks of the Ganga*, p. 51.
[78] "Harnessing the Law to Clean Up India: An Interview with M. C. Mehta," *Multinational Monitor* 16, no. 7 & 8 (1995). http://multinationalmonitor.org/hyper/mm0795.09.html [accessed 8/12/06].
[79] Marq de Villiers, *Water: The Fate of our Most Precious Resource* (Boston: Houghton Mifflin Company, 2000), p. 90.
[80] "Harnessing the Law to Clean Up India." A river is considered to be "dead" when the levels of oxygen within its waters are so low that the river is unable to support aquatic life.

fire. The fire went 20 feet high and could not be extinguished for three hours."[81] This is a quite literal example of water under fire.

In what follows, I consider the pollution of the Ganges as it is evaluated at the holy city of Banaras, also called Varanasi and Kashi. As India's largest pilgrimage/tourist site, this city is highly esteemed as being "the center of Shiva's universe, as well as the beginning and end point of human civilization."[82] A stark contrast in water quality can be noticed when comparing the Ganges at its source to the river at this sacred city: "pristine and blue at its birthplace in the high Himalayas, the Ganges at Varanasi is brown and filthy, literally bubbling at some spots with untreated sewage and effluents from nearby tanneries."[83]

As reported in 1982, the holy city Banaras witnesses the pollution of the Ganges not only in terms of large quantities of domestic and industrial waste (as do many other cities along the Ganges), but also in terms of a yearly addition of approximately "3000 half burnt human bodies, 6000 carcasses, 140-200 tons of flesh, [and] 200-300 tons ash (produced by burning 11000 tones of firewood)."[84] This extreme amount of pollution is largely associated with the fact that Banaras features a magnificent cremation ground, the Mahashmashana, where the remains of deceased pious Hindus are burned and disposed into the Ganges so that the deceased may reunite with ancestors or achieve liberation (*moksha*).

Various responses to the pollution of the Ganges have arisen in recent decades. One such response comes from *pandas* (pilgrim priests) who work in Dashashvamedha, a neighborhood in southern Banaras. These *pandas* hold that the Ganges may be able to become unclean or

[81] "Harnessing the Law to Clean Up India."
[82] Kelly D. Alley, "Idioms of Degeneracy: Assessing Ganga's Purity and Pollution," in *Purifying the Earthly Body of God: Religion and Ecology in Hindu India*, ed. Lance E. Nelson (Albany: State University of New York Press, 1998), p. 298.
[83] Ward, *Water Wars*, p. 195.
[84] Ghose and Sharma, *Pollution of Ganga River*, p. 36.

polluted (*asvaccha* or *ganda*) but can never become impure (*ashuddha* or *apavitra*).[85] That is to say, they consider the Ganges to be materially unclean at the same time that the river is ritually pure. They teach pilgrims who come to the holy city of Banaras that the Ganges is sacred and pure, and that they should perform ritual ablution (*snan*), meditation (*dhyan*), and worship (*puja*) to become pure themselves.[86]

The *pandas*, along with residents and pilgrims in Banaras, invoke the motherly aspects of the Ganges, and say that the Ganges cleans up the filth that her children bring to her waters and forgives them in a loving way. That is, she shows maternal kindness to those who come to her waters by excusing their behavior and purifying them.[87] A *panda* at Dashashvamedha says that "Ganga cleans herself during the monsoon" by climbing up the *ghat* steps (leading from the riverbank into the river) to take away all the impurities and silt.[88]

The *pandas* argue that any corpses that are discarded into the river are likely done so against Hindu law. The priests say that the sacred texts call for the cremation of the dead so that the physical bodies can be purified, as "corpses are carriers of ritual impurity," according to Hindu custom.[89] However, they note that these texts also say that some individuals (e.g., holy men, children, lepers, and smallpox victims) must not be cremated. This shows that dead bodies are not inherently problematic for Ganga, as she is said to be able to purify them.[90] The *pandas* reinforce this message when they sometimes mockingly point to corpses within the Ganges, saying "Look, Madam, dead body!" and then laugh.[91]

---

[85] Kelly D. Alley, "Separate Domains: Hinduism, Politics, and Environmental Pollution," in *Hinduism and Ecology: The Intersection of Earth, Sky, and Water*, eds. Christopher Key Chapple and Mary Evelyn Tucker (Cambridge: Harvard University Center for the Study of World Religions, 2000), p. 357.
[86] Alley, "Idioms of Degeneracy," p. 299.
[87] Ibid., p. 312.
[88] Qtd. in Alley, "Separate Domains," p. 372.
[89] Alley, "Separate Domains," p. 309.
[90] Alley, "Idioms of Degeneracy," p. 309.
[91] Ibid., p. 310.

The *pandas* teach the pilgrims of passages within the *Shiva Purana* refer to proper conduct near water, teaching its readers to "distance some everyday human processes such as defecation, brushing teeth, spitting, and washing clothes from the riverbank."[92] However, some *pandas* argue that it is difficult to enforce such practices of distancing on the Dashashvamedha *ghat*: "while pilgrims perform ablutions, others wash clothes with soap, a *panda* spits, an old woman 'does latrine' on a corner of the *ghat* (for lack of public facilities), and urban sewage flows into the river under the *ghat* floor. *Gandagi* [material dirtiness] surrounds the people seeking purification."[93] Although *pandas*, pilgrims, and many residents of Banaras perform rituals to keep Ganga happy so that the goddess will continue to purify, these people are nonetheless disturbed about *gandagi* within the river, and are concerned about their personal health. Furthermore, two of the three primary *pandas* of Dashashvamedha seldom bathe at their *ghat*, and instead recommend bathing at cleaner locations.[94]

Not only do *pandas* and pilgrims religious devotees and leaders argue that the Ganges has the ability to spiritually purify, but many scientists agree that the river has an objectively measurable self-purifying capacity. It is said that "no other river in the world has this unique type of self-purifying capacity as that of river Ganga."[95] Whereas most river water develops bacteria and fungi within a few days, the Ganges water does not decay for months and years.[96] This is because the Ganges is full of antiseptic minerals and many acclimatized microbes that give the Ganges germicidal and bacteriostatic properties.[97] When reflecting on the fact that cholera germs cannot survive in Ganges water, Dr. F.C. Harrison points out that "it seems

[92] Ibid., p. 307.
[93] Ibid., p. 308.
[94] Ibid., pp. 311-12.
[95] Ghose and Sharma, *Pollution of Ganga River*, p. 209.
[96] Sinha, *Ganga Pollution and Health Hazard*, p. 1.
[97] Ghose and Sharma, *Pollution of Ganga River*, p. 222. Shiva, *Water Wars*, p. 133.

remarkable that the belief of the Hindus, that the water of this river is pure and cannot be defiled and that they can safely drink it and bathe in it, should be confirmed by means of modern bacteriological research."[98]

The self-purifying capacity of the Ganges is sometimes explained in terms of sorption, which happens as harmful metals such as arsenic are absorbed in the large quantity of sediments flowing through the river. "Sorption thus acts as systematic 'depoisoning' of the Ganga water."[99] This is further accentuated by the seasonal floods that greatly increase the river's velocity, pushing out the sediments with the absorbed harmful metals into the Bay of Bengal.[100] Also contributing to the Ganges' self-purification is the higher concentration of radon in this river as compared to that of its tributaries.[101]

Sinha, an Indian geo-chemist, notes that the self-purification of the Ganges "is the key to the holiness and sanctity of its water."[102] He makes the following observation with respect to the massive amount of pollution in the Ganges, warning that there may be a limit on the river's self-purification capacity:

> It is obvious that on the one hand, the Ganga has been getting the pollution load in huge amounts in terms of fertilizers, insecticides, pesticides, industrial wastes, domestic wastes, etc. On the other hand, the Ganga has got self-purification capacity but how long it will continue only time can judge. Therefore, seeing the growing effect of pollutants one has to think over the matter vigorously and some arrangement should be made to keep the Ganga clean.[103]

One group that has made an attempt to keep the Ganges River clean and free of pollution is the Sankat Mochan Foundation, a non-profit organization of Banaras citizens and engineers established in 1982. This foundation started an education program in 1983 called the Clean

[98] Qtd. in Shiva, *Water Wars*, p. 134.
[99] Sinha, *Ganga Pollution and Health Hazard*, p. 82.
[100] Ibid., p. 83.
[101] Ghose and Sharma, *Pollution of Ganga River*, p. 218.
[102] Sinha, *Ganga Pollution and Health Hazard,* p. 1.
[103] Ibid., p. 84.

Ganga (*Swatcha Ganga*) Campaign in order to raise public awareness about the Ganges' pollution, as well as to restore and preserve the Ganges while maintaining the religious traditions of the ancient city of Baranas.[104] As such, members of this campaign are invoking a sort of "syncretism of Hinduism and science," acknowledging the sacred purity of the river while arguing that the removal of the physical pollution of the river is their chief concern.[105] The foundation and campaign are headed by Veer Bhadra Mishra, who is both the priest of the Sankat Mochan Temple (the second largest temple in Banaras) and the retired Head of the Department of Civil Engineering at Banaras Hindu University.

In the early 1980s, Mishra and other members of the Clean Ganga Campaign have pressured the federal government to focus on the pollution of the river, contributing to the formation of the Ganga Project Directorate in 1985 to oversee the Government of India's first environmental program, the Ganga Action Plan of 1986.[106] This plan has aimed at reducing pollution at the major cities along the Ganges by setting up pumping stations and sewage treatment plants (three of which were situated at Banaras). The Ganga Action Plan has also established electric crematoriums at Banaras and other major religious cities along the river to help the poor afford proper cremation for their dead, as the rising prices of firewood encourages displacing corpses into the river. To further deal with the problem of corpses submerged into the river, the authorities of the Ganga Action Plan established a turtle breeding farm near the river in 1987. They released the turtles into the Ganges so that they would eat the flesh of the corpses. However, residents of Banaras claim that this project miserably failed, as the turtles were never

[104] Sankat Mochan Foundation. http://members.tripod.com/sankatmochan/index.htm [accessed 3/15/06]
[105] Alley, "Idioms of Degeneracy," p. 317.
[106] Ibid. Alley, *On the Banks of the Ganga*, pp. 3, 29.

seen to be eating corpses, but instead only bothering the pilgrims bathing in the river. By 1995, the Ganga Action Plan completely eliminated this project.[107]

The Clean Ganga Campaign has pointed to other downfalls in the government's Ganga Action Plan. For example, due to frequent electricity shortages in Banaras, the electric crematoriums as well as the pump meant to divert sewage to a downstream treatment plant often fail to work.[108] Moreover, after observing within their own laboratory that the quality of Ganga water was not improving, the members of the Clean Ganga Campaign pressured the government to construct better sewage treatment plants. Working with researchers at the University of California at Berkeley and the University of Stockholm, members of the Clean Ganga Campaign have proposed that oxidation ponds are a much more effective method to treat sewage than the activated sludge process developed through the Ganga Action Plan. This is because oxidation ponds are much more compatible with India's hot climate and thus is much less expensive than the activated sludge process.[109]

Each of these responses to the pollution of the Ganges has a unique perspective that can enhance the other perspectives. However, many times one group overlooks the other groups' responses to the river's pollution, as each group has been distrustful of the others. As Kelly Alley points out, "each group accuses the other of acting 'in the name of Ganga' (*ganga ke nam par*), not in true service to her."[110]

For example, although many scientists confirm that the Ganges has a self-purifying capacity, those who drink the water often get sick from hepatitis, typhoid or cholera.[111] Alley

---

[107] Alley, "Idioms of Degeneracy," p. 311.
[108] Meenakshi Ganguly, "Veer Bhadra Mishra: Holy War for 'My Mother.'" Time.com Heroes of Our Planet Hero Gallery. August 16, 1999. http://www.time.com/time/reports/environment/heroes/heroesgallery/0,2967,mishra,00.html [accessed 4/5/06]
[109] Alley, "Idioms of Degeneracy," p. 320.
[110] Ibid., p. 322.
[111] Ganguly, "Veer Bhadra Mishra,"

relays that when she once contracted viral hepatitis from drinking tea made from Ganga water, many living in Banaras blamed her for lacking *bhakti* (devotion) and thus having "no immunity," placing no blame on the city's sewage infrastructure or the river itself.[112]

Many *pandas* in Banaras do not acknowledge the validity of such scientific terms as Biological Oxygen Demand (BOD) and Fecal Coliform Count (FCC) that are integral to the language of the Ganga Action Plan and the Clean Ganga Campaign. These *pandas* also link the scientific techniques meant to physically clean the river with bureaucratic corruption, claiming that the government and the members of the Clean Ganga Campaign "actually create the 'pollution' they claim to control" and are trying to make money for themselves through the sewage treatment plants; seldom do the *pandas* extend the blame for the river's pollution to industrialists.[113]

The Clean Ganga Campaign maintains that the government has not used sewage treatment funds properly, while holding that *pandas* need to encourage more pollution prevention ideas with pilgrims and residents of the city. The Ganga Project Directorate claims that the Clean Ganga Campaign exaggerates their criticisms and proposals, while blaming pilgrims and residents that their traditional use of the river is destructive. Thus, although these efforts are directed toward ecological concerns, their responses to the pollution of the Ganges differ considerably, with each providing both problematic and promising contributions.

The Damming of the Ganges

In what follows, I describe the Tehri Dam in light of natural and cultural factors, considering a confluence of issues related to the Ganges river, including religion, politics, economics, environmental justice, ecology, and geology. The Tehri Dam, which has recently

[112] Alley, *On the Banks of the Ganga*, pp. 6-7.
[113] Alley, "Separate Domains," p. 358. Alley, "Idioms of Degeneracy," p. 322.

been completed, is considered to be one of the biggest and most controversial hydroelectric projects of the world.[114] The dam, located at the foot of the Himalayas in the northern Indian state of Uttarakhand (Uttaranchal or Uttar Pradesh), has been built on the Bhagirathi River, the principle tributary of the Ganges River, just below the confluence of the Bhagirathi and the Bhilangana (also referred to as the Bhillunguna or Bhillinganga). Exceeding construction costs of $1.5 billion dollars, the Tehri Dam is the highest dam in Asia and the fifth highest dam in the world, reaching a height of 260.5 meters (855 feet).[115]

The dam has been built by the Tehri Hydro Development Corporation with the intention of using the flow of the Ganges water to generate 2400 megawatts of electric power for large cities such as Delhi, Allahabad, and Kanpur. The dam will also provide irrigation water for 270,000 hectares of land in the western regions of Uttarakhand, as well as 500 cubic feet per second of drinking water to Delhi.[116] This earth and rockfill dam will submerge 5,200 hectares of land, the town of Tehri, and 40 other villages; it will partially submerge another 72 villages, resulting in the displacement of a large number of people, with estimates ranging from 70,000 to 100,000 people.[117]

The Bhagirathi gorge at Tehri was first noted by the Geological Survey of India as a potential site for a dam in 1949.[118] The site was approved by the Central Water and Power Commission in 1961, and after eight more years of technical studies, "an ostensibly complete

[114] International Rivers Network, "IRN Fact Sheet: Tehri Dam," (Oct. 22, 2002): p. 1. http://www.irn.org/programs/india/021022.tehrifactsheet.pdf [accessed 2/15/06]
[115] James, "Tehri Dam," p. 1626.
[116] Ibid.
[117] Ibid. Cf. Satyajit Singh, *Taming the Waters: The Political Economy of Large Dams in India* (Delhi: Oxford University Press, 1997, pp. 136, 189.
[118] Fred Pearce, "Building a Disaster: The Monumental Folly of India's Tehri Dam," *The Ecologist* 21, no. 3 (1991): 124.

project report was submitted to the Uttar Pradesh State Irrigation Department in 1969."[119] The Tehri Development Project was approved by the federal Government's Planning Commission in 1972, and by the Uttar Pradesh state government in 1976.[120]

Construction of the dam began in 1978.[121] However, the progress of building the dam has been very slow. The dam was first the project only of the state of Uttar Pradesh, who had trouble raising funds. This state had declared a "desperate shortage of electricity," but it nevertheless canceled "a smaller, uncontroversial 'run-of-the-river' hydro-electric project on the same river, which would have been generating power for some years now," so that the Tehri Dam could be built in its place.[122] Early in the 1980s, work on the dam almost stopped completely due to lack of funds, but Mikhail Gorbachev quickly agreed to aid the project in 1986 after negotiations to fund nuclear power projects in India failed, although this political decision ignored the advice of the Department of the Environment.[123] The Indo-Soviet agreement gave approximately $416 million of aid to the Tehri Dam project, along with Soviet technical expertise.[124]

In 1988, the Tehri Hydro Development Corporation was incorporated to oversee the dam's construction. In 2001, the two lower tunnels of the dam were closed. The last two tunnels were scheduled to be closed in December 2002, but this closing was delayed until October 2005. As of January 2006, Old Tehri Town has been submerged under the Ganges water. The first phase of power generation (producing 1000 MW of electricity) began in mid-July 2006.

---

[119] Sanjeev Khagram, *Dams and Development: Transnational Struggles for Water and Power* (Ithaca: Cornell University Press, 2004), p. 53.
[120] Ibid.
[121] Mawdsley, "The Abuse of Religion and Ecology," p. 9.
[122] Pearce, "Building a Disaster," p. 124. A "run-of-the-river" project generates electricity through the use of gravity without the need to impound water within a reservoir. In this type of project, channels from a river are diverted to power stations downstream, and the force of gravity enables the water to spin the turbines and produce electricity; afterwards, the water is directed back into the river.
[123] Ibid, p. 124.
[124] International Rivers Network, "IRN Fact Sheet," p. 2.

Although the central government of India and the state government of Uttarakhand have condoned the Tehri dam, there has been much controversy concerning the dam, particularly concerning the location of the dam site. The Tehri Dam is being built in one of the most geologically active regions in the world.[125] More specifically, the dam site is located in the Central Himalayan Seismic Gap, a major geological fault zone, just 15 kilometers from the boundary between the Indian and Eurasian continental plates. There have been 17 earthquakes in the Garhwal region from 1816 to 1990, and at least two more from 1991 to the present (one in 1991 in Uttarkashi and another in 1998 in Chamoli).[126]

Building the Tehri Dam on a fault line makes the dam potentially susceptible to collapse in the face of an earthquake within this region; it also increases the potential of the dam to induce seismic activity.[127] Regarding the former, a collapse of the dam could result in the deaths of a few hundred thousand people living downstream, submerging such largely populated cities as Rishikesh, Haridwar, Bijnor, Meerut, Hapur, and Bulandshahar within twelve hours.[128] Regarding the latter, at least 70 dams and reservoirs around the world have been linked with occasioning earthquakes, as "the tremendous weight of water in a basin not designed to hold it deforms the earth's crust beneath it."[129]

Throughout the course of the dam's development, there have been complex scientific debates concerning the safety of the dam. While earthquake engineers hired by the Indian government argue that the Tehri dam is safe and can withstand an earthquake with a magnitude of 8 on the Richter scale, various independent seismologists argue that the dam could not be able

[125] Pearce, "Building a Disaster," p. 126.
[126] Vandana Shiva, *Earth Democracy: Justice, Sustainability, and Peace* (Cambridge: South End Press, 2005), p. 174.
[127] Singh, *Taming the Waters*, p. 157. Cf. Pearce, "Building a Disaster," p. 125.
[128] Shiva, *Earth Democracy*, p. 174.
[129] Barlow and Clark, *Blue Gold*, p. 49.

to withstand massive earthquakes, pointing out how the government's earthquake engineers have misapplied the formula for calculating the dam's ability to withstand such earthquakes.[130] After examining the factors involved with the dam site, the International Commission on Large Dams has called this dam site "extremely hazardous."[131]

In spite of the repeated warnings of many independent seismologists about the dangers of dams built on fault lines, as well as the occurrence of the 1991 Uttarkashi earthquake whose magnitude was 6.8 on the Richter scale and whose epicenter was only 50 km away from the dam's location, the development of the Tehri dam continues. Even advice from numerous seismologists to modify the dam's design to include wider base structures for increased safety has not been followed due to the immediate economic building costs involved.[132] Perhaps related to the shifting tectonic plates below the dam, a large crack was noticed in 1998 on mountain face that forms one of the sides of the dam's reservoir.[133]

Furthermore, independent scientists warn that the Tehri dam is likely to encounter landslides into the reservoir on account of the high rate of erosion of the Himalayas. This landslide potential increases because the dam will provide "peak load" electricity and will thus rapidly and frequently release water into the riverbed and quickly refill the dam. Landslides into the reservoir would increase silt buildup, diminishing the life of the dam. Moreover, if a large landslide occurred, this would likely result in a tidal wave flooding over the boundaries of the dam. This, like an earthquake, would cause severe flooding downstream, with the potential of killing a vast number of people in the river's path.[134]

---

[130] Pearce, "Building a Disaster," pp. 126-27.
[131] Shiva, *Earth Democracy*, p. 174.
[132] Singh, *Taming the Waters*, p. 157.
[133] Gosling, *Religion and Ecology in India and Southeast Asia*, p. 141.
[134] Pearce, "Building a Disaster," pp. 127-28.

One landslide in the history of the Tehri dam occurred in August 2004. Incessant rainfall had raised the water level of the Bhagirathi River during the dam's construction. The waters overflowed the riverbed, flooding the land nearby and causing a landslide that caved in the entrance of one of the tunnels of the dam. Over 80 workers on the dam were trapped, and at least 29 were killed.[135]

There is also controversy among scientists as to the longevity of the dam. According to some government engineers, the life of the dam could be as long as 100 years. However, independent researchers from Wadia Institute of Himalayan Geology say that this number has failed to take into account the "bedload" of the river (i.e., rocks & other debris that flow within riverbed. Geologists from this institute estimate that the dam will most likely endure only 30-40 years due to the high siltation rate of the Ganges.[136] (As noted above, the Ganges carries the third highest sediment load of all rivers in the world, making the lifetime of dams built on this river significantly shorter than those on other rivers.) Shiva argues that silt islands within the reservoir of the Tehri Dam "are rising faster than the captured water" and makes the point that the dam "will hold silt, not water, and create floods, not prevent them."[137]

Many people from the public have spoken out against the Tehri Dam. As George James notes, "Since its inauguration, public protest against the project has centered upon the interrelated issues of ecology, economic and environmental justice, and religion."[138] Some say that the Tehri Dam, like other projects of such grandeur, "has been imposed on the locals with little or no consultation before or since the decision was taken."[139] One person native to Tehri

[135] Nirmala Carvalho, "Landslide Near Tehri Dam Construction Site Kills at least 29 People," AsiaNews.it. August 2004. http://www.asianews.it/view.php?l=en&art=1249 [accessed 7/31/06]
[136] Pearce, "Building a Disaster," p. 128.
[137] Shiva, *Earth Democracy*, p. 174.
[138] James, "Tehri Dam," p. 1626.
[139] Pearce, "Building a Disaster," pp. 124-125.

bitterly notes, "Who is this dam for? Not the people of Garhwal. We have sacrificed our homes, our farms, our fields, just so the government can make electricity to run more air conditioners in Delhi."[140] Compensation is also problematic, as Vijay Negi, a Tehri dam opponent, points out: "giving cash compensation for loss of land and homes in a region like this, where many village people are not used to handling large sums of money, is like throwing the people to the wolves. […] Where will they go when the waters rise?"[141]

The Tehri Hydro Development Corporation has been in charge of resettlement issues. New Tehri Town has been built on the hill overlooking Old Tehri Town, so that those displaced by the dam and reservoir will have a place to live. This settlement has been constructed primarily of cement, "with rows of boxlike buildings regimented across the ridge."[142] Furthermore, investments and improvements to Old Tehri Town have been nonexistent since government approval of the dam in 1972, and the people of Tehri "have grown used to unhygienic conditions."[143]

The most active group of organized protest against the dam is the *Tehri Bandh Virodhi Sangharsh Samiti* (TBVSS, translated as the Tehri Dam Resistance Struggle Committee, as well as the Anti-Tehri Dam Struggle Association). Since its formation in 1978, this group has acquired the support of every political party in Tehri.[144] Protesting by means of fasts, rallies, and demonstrations, this group has also helped to pressure various authorities to review the Tehri Dam project on a number of occasions.[145] However, some of this pressure has produced unwanted effects. After much criticism from the anti-Tehri dam group, in 1979 the Uttar

[140] Qtd. in Alter, *Sacred Waters*, p. 69.
[141] Qtd. in Pearce, "Building a Disaster," p. 126.
[142] Alter, *Sacred Waters*, p. 66.
[143] Qtd. in Pearce, "Building a Disaster," p. 126. Cf. Shiva, *Earth Democracy*, p. 174-75.
[144] Pearce, "Building a Disaster," p. 125.
[145] International Rivers Network, "IRN Fact Sheet," p. 3. Khagram, *Dams and Development*, p. 54.

Pradesh Irrigation Department tried to outweigh the costs of the Tehri dam with greater benefits. In doing so, they largely expanded the structure of the dam, revising the dam's initial project report that had decided upon 600 MW of power to promise a power output of 2400 MW and an increased potential for more irrigation.[146]

J.P. Raturi, a key representative of the group, has spoken against the dam in public forums by arguing that the Ganges is a life-giving goddess to the people of Tehri, while to the authorities involved with the Tehri Dam, the river is merely "megawatts of power and hectares of irrigated land."[147] Furthermore, Raturi has argued that the dam will bring electricity and irrigation only to wealthy urbanites, while displacing the people of Tehri who are poor rural dwellers. Others, like Sunderlal Bahuguna, have also argued this point, exclaiming that "when the Ganges flows in her natural course she benefits all, irrespective of caste, creed, color, poverty or wealth" but when dammed "becomes the possession of the privileged and powerful who can dispense her blessings on a partisan basis."[148]

Sunderlal Bahuguna has been a key figure in the struggle against the Tehri Dam. As a leader of the Tehri-Garwhal based Chipko movement that hugs trees to prevent them from being chopped down, Bahuguna has made public the connection between protecting the forests of the Himalayas and protecting the Ganges. Calling upon the myth of the goddess Ganga's descent to earth through the protective locks of Shiva's hair manifest as the Himalayan forests, Bahuguna argues that both the massive deforestation of Ganga's Himalayan watershed by commercial forestry and the damming of the Ganges by the Tehri Hydro Development Corporation are desecrating acts toward a sacred environment.[149]

---

[146] Khagram, *Dams and Development*, p. 54.
[147] James, "Tehri Dam," p. 1626.
[148] Ibid.
[149] Ibid.

Bahuguna also argues that the industrial revolution has brought a new religion to the world: "the temple of this religion is the market, technocrats and experts are its priests, and the dollar is the new god."[150] This new consumerist religion criticized by Bahuguna was publicly endorsed at the commissioning of the 740-foot-high Bhakra Nangal Project in 1963, when the Indian Prime Minister Jawaharlal Nehru made the famous pronouncement that big dams are the "modern temples of India."[151] As Shiva has pointed out, "the temples of ancient India, dedicated to the river goddesses, were substituted by dams, the temples of modern India, dedicated to capitalist farmers and industrialists, built and managed by engineers trained in patriarchal, western paradigms of water management."[152] Bahuguna declares that the building of the Tehri Dam will continue to propagate this new idolatrous religion at the expense of destroying the sacred Ganges. His wife, Vimla, adds that once the dam is completed, "the power and shakti of the Ganga will be drained away. It's not only an environmental disaster but the destruction of our spiritual and cultural heritage as well."[153]

Bahuguna and others within the TBVSS do not fight against this idolatrous religion with weapons; instead, they practice *ahimsa* (nonviolence) and *satyagraha* (standing courageously for the truth). One form of *ahimsa* and *satyagraha* is manifest in fasting: Bahuguna himself has gone on a number of hunger strikes to raise awareness about the dangers of the Tehri Dam and to persuade the authorities to review the dam more comprehensively. The duration of these fasts have ranged from 11 days to 74 days, bringing him dangerously close to death each time.[154]

In response to Bahaguna's fast in 1996, the Vishva Hindu Parishad (the VHP or "World Hindu Council") declared its opposition to the development of the Tehri Dam and launched a

---

[150] Ibid.
[151] Qtd. in Khagram, *Dams and Development*, p. 35.
[152] Vandana Shiva, *Staying Alive: Women, Ecology and Development* (London: Zed Books, 1989), p. 185.
[153] Alter, *Sacred Waters*, pp. 69-70.
[154] James, "Tehri Dam," p. 1627.

public awareness campaign against the dam's construction.[155] The VHP's opposition to the dam is based on their concern that the Tehri Dam "will compromise the goddess" insofar as "checking her flow will change her fundamental nature and limit her celebrated self-purificatory abilities."[156] Furthermore, the VHP is concerned about the dam's possibility of failing, which would lead to the deaths of a large number of Hindu residents and pilgrims, as well as the submergence and destruction of many of Hinduism's holiest cities and sites downstream from the dam.[157]

As Mawdsley has argued, this form of Hindu opposition to the Tehri Dam is problematic, as the issue of the dam has been focused on to promote a type of Hindu nationalism that is violent. That is to say, members of the VHP have used the platform of the dam to raise fear of Muslim threats to the Hindu nation. While focusing on Muslim "outsiders" as the central problem surrounding the dam, Hindu nationalists have ignored the larger environmental and social issues involved with the dam.[158]

The VHP was established in 1964 as an ecumenical attempt to bring together the diversity of Hindu beliefs and rituals under a single name. One subdivision of the group is called the Bajrang Dal, which is primarily rebellious youth that are employed to scare and threaten those who oppose the nationalistic platform.[159] The focal point of the VHP, along with other nationalistic groups in India, is to promote Hindutva (the "essence of Hindu-ness"), which is a "'blood and soil' vision of the sacred land of Hindustan for the Hindus."[160] Recognizing that *adivasis* (the indigenous peoples of India), Sikhs, Jains, and Buddhists have originated in India

[155] Gosling, *Religion and Ecology in India and Southeast Asia*, p. 141.
[156] Mawdsley, "The Abuse of Religion and Ecology," p. 11.
[157] Ibid.
[158] Ibid., p. 2.
[159] Ibid., p. 7.
[160] Ibid., pp. 7-8.

and can thus be considered "Hindu" to some degree, the VHP denies that Muslims and Christians have any ancient ties to Hinduism and India; thus, all Muslims and Christians should be expelled from the fatherland or subordinated to Hindutva ideals.

The violence involved with the VHP and Hindutva in general can be seen in the nationalistic Gujarat riots of 2002, which killed approximately 2000 Muslims and displaced tens of thousands.[161] This degree of violence had also taken place ten years prior: on December 6, 1992, over 2000 people were killed in the riots following the Hindu nationalistic demolition of the 16th century Babri mosque in Ayodhya. This mosque was destroyed on the grounds that it was built on land that traditionally has strong Hindu meaning (Ayodhya is regarded as the original birthplace of the mythic god-king Ram, as well as the territory where King Sagar reigned). Many Hindus felt sanctioned to reclaim this sacred space as their own, thinking that Muslims had no right to build a mosque there.[162]

A very explicit connection between the Muslim mosque at Ayodhya and the Tehri Dam was made in 2000 by a *sadhvi* (a woman renouncer): "The Tehri dam is being constructed to imprison the Ganga forever. This is an organised conspiracy to demolish our religion and culture. The way we had to demolish the Babri mosque [at Ayodhya] at our own risk, we have to get ready now for the demolition of the Tehri dam."[163] One VHP dignitary declared that "if the government tried to stall the free flow of Mother Ganges by building the dam, I will do to it what I did to the Babri Masjid."[164] These anti-dam messages are at the same time anti-Muslim messages, continuing the threat to expel Muslims from sacred Hindu lands. As Sharma states, representations of the Ganges in the anti-Tehri Dam movement have become "Hinduised," as

[161] Ibid., p. 8.
[162] Ibid., p. 12.
[163] Qtd. in Mawdsley, "The Abuse of Religion and Ecology," p. 12.
[164] Qtd. in Gosling, *Religion and Ecology in India and Southeast Asia*, p. 141.

"anti-Tehri dam politics has persistently and centrally been constructed through a conservative Hindu imagery, often in partnership with Hindutva politics" whose "ecological reasoning is blurred and goes beyond logic, eliciting Hindu support, patriotism and xenophobia."[165]

From Mawdsley's analysis, it is evident that opposition to the Tehri Dam is to some degree linked with Hindu nationalism and violent xenophobia, i.e., a hatred toward non-Hindu "others" who are threats to the Hindu nation. Thus, as Mawdsley argues, environmental issues and movements such as those surrounding the Tehri Dam are subject to dangerous religious politics.[166] She goes on to say that "great caution needs to be exercised" when attempting to draw upon religious sources for environmental movements, because violence and hatred can detrimentally influence the outcomes of these movements and turn would-be supporters away from important environmental and social issues.[167] In other words, the ideological manipulation of religion can threaten the success of environmental and social movements.

Moreover, these issues appear even more complex and problematic when considering their philosophical implications. It is to this issue that I now turn.

[165] Qtd. in Mawdsley, "The Abuse of Religion and Ecology," pp. 11-12.
[166] Mawdsley, "The Abuse of Religion and Ecology," p. 2.
[167] Ibid., p. 18.

CHAPTER 3

ECOLOGICAL CRISES AND REPRESENTATIONS OF THE GANGES:

From Bicameralism to a Politics of Things

In this thesis, I am attempting to articulate a philosophy of water, particularly by considering natural and cultural representations of the Ganges River. Within this chapter, I call upon the works of Bruno Latour to elaborate the philosophical implications of ecological crises currently happening along the Ganges. According to Latour, it is possible to articulate water in terms of a "circulating reference" between nature and culture, i.e., in terms of processes of translation whereby things have a hybrid constitution involving both natural and cultural representations.[168] Klaver speaks of such circulating reference in terms of "the co-constitution of nature and culture."[169]

Latour criticizes the modern articulation of the boundaries between humans and nonhumans, wherein humans are associated with subjective values, ethics, politics, society, religion, art, etc., and nonhumans are associated with objective facts, science, epistemology, nature, the environment, etc. For Latour, articulating the value of nonhumans (and water in particular) requires a new articulation of the boundaries between humans and nonhumans, and thus also the boundaries between other dichotomous pairs (e.g., facts/values, realism/constructivism, nature/culture, objects/subjects). Rather than seeing such pairs as mutually exclusive opposites, Latour helps articulate them in terms of "things," which are co-

[168] Bruno Latour, "Circulating Reference: Sampling the Soil in the Amazon Forest," in *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge: Harvard University Press, 1999), pp. 24-79.

[169] Klaver, "Phenomenology on (the) Rocks," p. 157. According to Klaver, co-constitution is a notion developed by Edmund Husserl at the end of his essay "Origin of the Spatiality of Nature." Husserl "emphasizes that human history is not accidentally situated on the earth, but that the earth, as 'primitive home-place' or as 'ark of the world,' precedes every 'world-possibility.' Human and all other life gains its constitutive force from the earth, which is 'co-constitutive of its own being.' Constitution clearly can no longer—even for Husserl—simply be relegated to an activity of consciousness grasping content as an exemplification of an essence." Irene J. Klaver, "Stone Worlds: Phenomenology on (the) Rocks," in *Environmental Philosophy: From Animal Rights to Radical Ecology*, eds. Michael E. Zimmerman et. al., 4th Ed. (Upper Saddle River: Pearson Education, 2005), p. 356.

constitutive.

Accordingly, I divide the following chapter into four sections. First, I give an account of how the modern bicameralism contributes to ecological crises insofar as it represents nonhumans as mere objects, matters of fact that are opposed to cultural representations. Second, I consider how the Ganges is represented as a mere object within the ecological crises of the pollution and damming currently occurring along the river. Third, I account for a politics of "things" that circulates references between nature and culture by viewing natural and cultural references as co-constitutive. Fourth, I consider how the Ganges is represented as a thing in what is currently happening with the pollution and damming of the river. These four sections articulate a movement away from articulations of water as a mere object to articulations of water as an assembly of references circulating between nature and culture.

Modern Bicameralism

In discussing the history of the boundaries between humans and nonhumans, Latour argues that the modern articulation of these boundaries is particularly problematic. Latour elucidates this modern problematic in terms of what he calls the modern Constitution. To show the role of water in modernity, particularly with a view to the Ganges River, I elucidate Latour's definition of the modern Constitution and consider how he accounts for contemporary ecological crises in terms of the meaning of objectivity in the modern Constitution.

To elucidate Latour's definition of the modern Constitution, I begin by summarizing his account of the general modern understanding of the famous allegory of the Cave in Plato's *Republic*.[170] As Latour notes, this allegory "defines the relations between Science and

[170] Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy*, trans. Catherine Porter (Cambridge: Harvard University Press, 2004), pp. 10-18.

society."[171] The schism between science and society articulated in the allegory has become paradigmatic for processes of modernization. Before giving Latour's account of the modern implications of this allegory, I briefly summarize the allegory as it appears in the *Republic*.

In the opening of Book VII of the *Republic*, in the midst of a discussion on justice, Socrates speaks about an image of a cave with Glaucon and other interlocutors in the dialogue. Socrates begins the allegory by saying that there are some humans who are enchained in the depths of a cave, unable to see anything but the wall of the cave in front of them, which is dimly lit by a fire behind them. In between the fire and the backs of the prisoners is a pathway. Along this pathway, other humans are carrying various artifacts, and the light of the fire projects their shadows onto the cave wall. The prisoners, as they see the shadows and hear the sounds of the movement behind them, think that "the truth is nothing other than the shadows of artificial things" (515c 1-2). At some point, one of the prisoners is released, and he turns around and starts to walk up out of the cave toward the light above. This is very painful, as his eyes are so used to the dim light within the cave. As he walks up out of the cave, he slowly is able to see the artifacts whose shadows he once thought were reality. Gradually, as his eyesight adjusts to the light outside the cave, he realizes that the sun and the world lit by its light are much truer than the shadowy appearances he had seen earlier. The man then goes back down into the cave and tells the prisoners about the true things he saw up above in the sun-lit world. With the help of the man who travels back and forth from the dark depths of the cave to the light of day, the prisoners are able to gain a better understanding of the way things truly are, instead of how they merely appear to be shadows on the cave wall.

[171] Ibid., p. 10.

In *Politics of Nature*, Latour invokes the allegory of the Cave with reference to two points.[172] The first point is that the Philosopher (and later the modern Scientist) must become liberated from the oppressive realm of society, politics, subjectivity (the dark depths of the Cave) in order to know truth (the light of the Sun). Latour's second point is that once the Philosopher-Scientist has learned objective truth by seeing the realm outside the Cave, he must then go back into the Cave with his indisputable knowledge of things and silence the unending rumors and disagreements of the prisoners. These points regarding the allegory of the Cave depict two discontinuous, mutually exclusive realms: the realm of humans and the realm of "truths 'not made by human hands.'"[173] These realms are bridged by the mediation of the Philosopher-Scientist, who has the authority to reflect upon the objective world and bring the scientific laws learned therein to the enchained mob otherwise condemned to the tyranny of ignorance.

The allegory of the Cave has much relevance to moderns, as it is reflected in what Latour calls the modern Constitution. "Constitution" is a term Latour borrows from political science, but he intends for it to include the constitution of reality (i.e., a metaphysical sense of Constitution). Latour distinguishes Constitution from similar terms, particularly from "culture" and "structure." He distinguishes Constitution from culture because Constitution includes human *and* non-human things, that is, cultural and natural things. He distinguishes Constitution from structure because Constitution is a willful and explicit construction, whereas structure connotes a pre-established order.[174]

Just as the allegory of the Cave suggests a bifurcation of natural and cultural phenomena,

---

[172] Ibid., pp. 10-11

[173] Ibid., p. 10. In explaining the phrase "not made by human hands," Latour notes that his co-authored work with Peter Weibel entitled *Iconoclash: Beyond the Image Wars in Science, Religion, and Art* (Cambridge: MIT Press, 2002) is an encyclopedic effort to elucidate the "origin, history, and impact of this expression." Latour, *Politics of Nature*, p. 252 fn. 2.

[174] Latour, *Politics of Nature*, p. 239

Latour argues that the modern Constitution can be described as a form of bicameralism. "Bicameralism" is a political term describing "systems of representations with two houses."[175] (One example of bicameralism is found within British Parliament, wherein the aristocratic House of Lords is distinguished from the democratic House of Commons. Bicameralism is also found in American Congress, with the Senate and the House of Representatives.) In describing the bicameralism of the modern Constitution, Latour is referring to the distribution of powers between the house of nature and the house of society, i.e., the house of nonhumans/objects and the house of humans/subjects. The house of nature represents objects and facts, whereas the task of representing subjects and values is relegated to the house of politics.

Latour notes that modern Scientists attempt to act as mediators between the two houses of nature and society by learning the laws of the nonhuman world and transmitting these truths to the ignorant human public. This act of mediation endows Scientists with a grand political authority, as they "*can make the mute world speak, tell the truth without being challenged, put an end to the interminable arguments through an incontestable form of authority that would stem from things themselves.*"[176] In other words, the Scientist is able to represent mute nonhumans and provide a definitive answer to the questions that humans ask about the natural world.

Latour argues that the epistemology occurring through the Scientist's mediation between the human and nonhuman realms is not epistemology in the sense of studying knowledge or describing scientific practices, but is instead what he calls "(political) epistemology," whose goal is to short-circuit attempts to understand the complex relationship between nature and society by positing Science as the only salvation from the ignorance of the imprisoned social realm.[177] This salvation through Science can happen only when society is controlled by the "epistemology

[175] Ibid., p. 238.
[176] Ibid., p. 14.
[177] Ibid., pp. 12-13.

police," those who work to silence the rumors of the uninformed public with their objective knowledge about the natural world, enforcing the bicameralism of the modern Constitution and thus continuing to reflect the two houses described within the allegory of the Cave.[178]

However, as Latour notes, we can discard the allegory of the Cave and redraw the modern Constitution in a way that does not promote the bifurcation of reality, but instead works toward a politics that entails "*the progressive composition of the common world.*"[179] Before I consider Latour's redistribution of the boundaries between humans and nonhumans and its significance for contemporary water issues, I indicate the significance of ecological crises for the modern Constitution by considering two examples of such crises happening along the Ganges River: 1) the pollution and purity of the river, and 2) the development of the Tehri Dam located on the principle tributary of the river.

The way the modern Constitution represents water can be understood through a consideration of the ecological crises implicated in contemporary water issues, specifically the issues of damming and pollution. However, before discussing such water issues, it is helpful to consider Latour's definition of ecological crises. For Latour, ecological crises are "crises of objectivity," which is to say, they are crises wherein all objects become questionable and can no longer be relegated either to the house of nature or to the house of society.[180] In other words, for Latour, an ecological crisis is "a generalized constitutional crisis that bears upon *all objects*," and not merely a crisis of the physical environment or of natural objects.[181] In short, the modern Constitution that designates rigid, determined boundaries for each thing within the universe

[178] Ibid., pp. 13, 241.
[179] Ibid., p. 18.
[180] Ibid., p. 20. In referring to a crisis of objectivity, Latour is not arguing that an ecological crisis has no bearing upon subjectivity; rather, the crisis of objectivity is precisely the crisis of positing an objective realm that excludes and is excluded from a subjective realm.
[181] Ibid, p. 20.

(placing each thing neatly within either the house of nature or the house of society) is at the root of the crisis.

Within this crisis of objectivity that puts the modern Constitution into question, all objects are demanding to be treated as subjects as well. Thus, Latour explains that an ecological crisis is first and foremost a "generalized revolt of means."[182] By this, Latour is indicating that Kant's categorical imperative to "act in such a way that you treat humanity […] as an end and never simply as a means" is insufficient, as it accounts only for the treatment of human subjects while ignoring nonhuman objects.[183] Latour says that this obligatory action must apply to nonhumans as well, thus forming a new "kingdom of ends" that includes both humans and nonhumans, as opposed to the exclusive kingdom of ends to which Kant argues that only humans belong.[184] The new kingdom of ends as Latour describes it must include all things, even "the tiniest maggot, the smallest rodent, the scantest river, the farthest star, the most humble of automatic machines."[185]

In this constitutional crisis of objectivity, wherein all objects are revolting against being treated merely as means by humans, what were once taken to be mere objects or "matters of fact" are giving way to "matters of concern."[186] In other words, objects are revolting against being treated as "risk-free objects," facts that are unattached to the shadowy appearances of social and political concerns. In this revolt, it is becoming evident that objects are always entwined in the "risky attachments" of social and political concerns and that no object is risk-free.

---

[182] Ibid., p. 216.
[183] Immanuel Kant, *Grounding for the Metaphysics of Morals with On a Supposed Right to Lie because of Philanthropic Concerns*, trans. James W. Ellington, 3rd Ed. (Indianapolis: Hackett Publishing Company, Inc., 1993), p. 36.
[184] Latour, *Politics of Nature*, pp. 155-156, 216. Kant, *Grounding for the Metaphysics of Morals*, p. 40.
[185] Latour, *Politics of Nature*, p. 216. Latour notes that although Arne Naess, the founder of Deep Ecology, extended Kant's kingdom of ends to include all living beings, he nevertheless made the same mistake as Kant in failing to include every being in the kingdom of ends, for inorganic beings must also be accounted for within the kingdom of ends. Ibid., p. 276, fn. 44.
[186] Ibid., p. 22.

In order to better understand what is currently happening with the Ganges, I consider what Latour means by saying that matters of fact are turning into matters of concern. Below I describe in general what a matter of fact is, elucidating Latour's discussion of the basic characteristics of a matter of fact or mere object. I then consider how the Ganges in particular is currently being treated as a matter of fact through an interpretation of the river's pollution and purity, as well as through an interpretation of the development of the Tehri Dam. Following this, I describe what Latour means by a matter of concern so as to better understand the Ganges' pollution and damming.

For Latour, matters of fact, or risk-free objects, have four basic characteristics:[187]

1) Matters of fact belong to the nonhuman world, having clearly distinguished boundaries and essences that are "defined by strict laws of causality, efficacity, profitability, and truth."[188] A risk-free object is similar to the extended thing (*res extensa*) described by Descartes insofar as it is characterized by "clear and distinct" boundaries and is opposed to the subjectivity of the human, a thinking being (*res cogitans*).[189] In positing such clear and distinct boundaries, philosophers like John Locke differentiate between those qualities that primarily characterize an object (e.g., "solidity, extension, figure, motion or rest, and number") from those secondary qualities that are only accidental attributes apprehended subjectively (e.g., "colours, sounds, tastes, &c.").[190]

2) Although human hands play a role in the articulation or expression of matters of fact, the humans who think of, make, and sell factual objects become invisible and forgotten as soon as the object is completed. In other words, matters of fact (as alluded to in the allegory of the

[187] Ibid.
[188] Ibid.
[189] René Descartes, *Meditations on First Philosophy*, trans. Laurence J. Lafleur (New York: Macmillan Publishing Company, 1951), p. 75.
[190] John Locke, *An Essay Concerning Human Understanding* (Amherst: Prometheus Books, 1995), pp. 85-86.

Cave) belong to the house of nature insofar as these truths are supposedly "not made by human hands," not made within the shadows of the Cave.[191]

3) Any consequences brought about by risk-free objects are thought to have influence within a completely separate realm, namely, the realm of society and politics. Thus, matters of fact are risk-free in that they are not drenched in a plethora of cultural values, but instead are unattached, valueless, objects complete in themselves.

4) Unexpected consequences never influence the original definition of the object, as these consequences belong to the many subjective realms of human history that is separate from the one objective realm of nature. Latour describes this division between a plurality of values and a singular objective truth as a division between multiculturalism and mononaturalism, according to which the house of society involves conflicting or incommensurable cultural values, while the house of nature calls upon Science (not sciences) to articulate the unified objective world.[192]

The Ganges River as a Mere Object

To see how the Ganges is treated as a matter of fact in the modern Constitution, it is helpful to examine the articulation of this river in terms of purity and pollution. Within this discussion, I closely follow Latour's four characteristics of a matter of fact.

1) As noted above, many scientists testify to the objectively measurable self-purifying capacity of the Ganges in light of bacteriology. They say that the objective presence of antiseptic minerals and acclimatized microbes clearly indicates the Ganges' germicidal and bacteriostatic properties. Many scientists also note that the purity of the Ganges is reaching an objectively determined limit of its capacity for self-purification and is becoming polluted by

[191] Latour, *Politics of Nature*, pp. 10, 252 fn. 2.
[192] Ibid., pp. 47-48.

discarded corpses and cremated ashes, municipal sewage and industrial effluent. However, many Hindus do not experience a clear and distinct boundary between waters that are spiritually pure and waters that are physically polluted, as they believe themselves to be spiritually purified by even the dirtiest of Ganga water. That these religious people do not demarcate a distinct limit between purity and pollution is seen in examples wherein there is laughter from religious leaders at corpses floating in the same waters that are ritually drank, as well as when there is ritual bathing in *ghats* where urban sewage is flowing below.

2) The human scientists involved with thinking up and articulating the Ganges' self-purifying capacity are invisible. That is to say, scientists would claim that they are not themselves determining that the Ganges is pure; they are furthermore not setting up the criteria that determine the Ganges' purity. Instead, scientific instruments and graphs discover and attest to the essential purity of the Ganges, and any human intervention in the constitution of the Ganges' purity is not seen. In other words, scientists claim that the Ganges would be self-purifying regardless of whether the scientists use their knowledge to objectively show the factors that point to the self-purifying capacity of the river. Accordingly, geo-chemist Sinha, who makes the point that the self-purification of the Ganges "is the key to the holiness and sanctity of its water," would view the Hindu articulation of the purificatory power of the Ganges as a merely subjective or cultural representation of the purity that is expressed objectively through chemistry and bacteriology.[193] In this respect, bacteriology would be seen as confirming or validating the factuality of what was heretofore merely a myth.

3) While scientists and their instruments attest to the river's essential self-purifying capacity, the fact that the Ganges is objectively self-purifying is not attached to any particular social and political concerns. An unexpected consequence of this is that the objective fact of the

[193] Sinha, *Ganga Pollution and Health Hazard,* p. 1.

self-purifying power of the river is appropriated by Hindus to reaffirm the self-purifying power of the Ganges expressed in their religious tradition.[194] Further unexpected consequences would ensue if Hindus appropriated this objective fact as a justification to not participate in socio-political efforts to clean the Ganges. For example, if asked to change their funerary practices to be less polluting to the Ganges, Hindus could argue that such change is unnecessary according to religious and scientific accounts of the self-purifying power of the river.

4) Insofar as the objective purificatory power of the Ganges is not attached to any social and political concerns, the unexpected consequences of any religious or socio-political appropriation of this objective fact are viewed as accidental characteristics of the Ganges that do not alter the Ganges' essential nature to be self-purifying. In short, these unexpected consequences do not affect the objective fact that the Ganges is essentially self-purifying. The scientists are not reframing or redefining purity in an attempt to account for any unexpected relationship between purity in its objective sense and purity as it is understood within the Hindu tradition. Any religious or socio-political appropriation of the purificatory power of the Ganges does not alter the original claims of scientists that there is an objective purity of the river.

The Ganges is also treated as a matter of fact in the development of the Tehri Dam. Similar to how I interpreted the pollution and purity of the Ganges in light of Latour's four criteria of a matter of fact, I now elaborate how the Ganges is treated as a matter of fact with a view to the actions of government officials, engineers, and seismologists in developing the Tehri Dam.

1) For the government-funded engineers and seismologists developing the Tehri Dam, the Ganges has clear and distinct boundaries that determine its significance as primarily that of a natural object, with values being mere subsequent determinations relegated to the house of

[194] Alley, *On the Banks of the Ganga*, pp. 66-67.

society. For the engineers and seismologists, the question of whether the Tehri Dam should be built on the Ganges is a matter of collecting objective measurements that indicate the economic viability of the dam for the purposes of producing a maximum amount of electrical power and irrigation waters from it.

2) The developers of the dam claim that the Tehri Dam is being developed in light of objective scientific data for which the subjective interests of the scientists articulating that data are irrelevant and invisible. However, independent seismologists are contesting the conclusions of the government-funded scientists, arguing for example that the latter have misapplied formulae for calculating the dam's ability to withstand large earthquakes. This suggests that the subjectivity of the scientist plays more of a role in supposedly objective facts than is indicated by the seeming invisibility of the scientists.

3) The displacement of a large number of people of Old Tehri Town from what is for many of them sacred land raises a variety of socio-cultural and religious issues that the government-funded scientists relegate to the house of society, distinctly separated from their matter-of-fact calculations. Likewise, the possible consequence of an earthquake in the seismically active region of the dam site may affect many heavily populated cities downstream from the dam, but again, this is a problem of society that the government-funded scientists have failed to take into account.

4) Unexpected consequences of the Tehri Dam (including the displacement of peoples and the possibility of a destructive earthquake) do not change the original meaning of the Ganges as belonging to the house of nature. That is to say, these unexpected consequences do not alter the fact that the Ganges River is essentially a natural object from which humans can extract electrical power and irrigation waters. For instance, when Bahuguna and others within the

TBVSS began to protest the development of the dam in the late 1970s, the developers responded by readjusting their cost-benefit analysis in such a way that the structure of the project was greatly expanded, thus justifying the building of the dam without accounting for social, cultural, and religious concerns raised by the protestors.

Although the two aforementioned examples show instances of scientists supporting the bicameralism of the modern Constitution, this bicameralism is also reinforced through politics and religion. For example, the VHP argues that the Ganges has an essential nature, using this privileged knowledge of the essence of Ganga to short-circuit politics. The VHP takes a nationalistic position in saying that this river (along with all land in India) inherently belongs to Hindus, promoting this claim in 1983 by distributing sacred Ganga water throughout India for the purposes of symbolizing national unity.[195] They argue that the Tehri Dam will alter the river's flow, limiting its essential self-purificatory abilities.

Through this consideration of the Ganges as it is treated within the limits of the modern Constitution, it is evident that the Ganges River is engaged in crises of objectivity arising from a bicameralism that divides reality into a house of society and a house of nature. In these crises of objectivity, political procedures are short-circuited insofar as their processes of representation are conceived of according to a mutually exclusive relationship between the two houses. In short-circuiting each other, the two houses are treating the river as if it were an object with an essential nature that determines politics and policies. The water of the Ganges is seeping through the cracks of this bicameralism as references about the river circulate between nature and culture, thus gathering together references that the modern Constitution holds to be mutually exclusive. Insofar as natural and cultural representations of the Ganges co-constitute one another, the bicameralism of the modern Constitution is rendered untenable.

[195] Gosling, *Religion and Ecology in India and Southeast Asia*, p. 124

In the example of the articulations of the river's purity and pollution, it is evident that the purity and pollution of the Ganges cannot be intricately represented by scientific representations alone or by religious representations alone. The pollution and purity of the river refuses to be a matter of mere objectivity, as it is intimately entangled with social and political concerns regarding religious traditions, public health, and laws. Likewise, the Ganges is seeping through the cracks of the bicameralism of the modern Constitution in the case of the articulations of the development of the Tehri Dam. Traditional representations of the sacred power of the Ganges, displaced peoples, and varieties of scientific evidence all indicate that the natural and cultural representations of the development of the Tehri Dam are mutually constitutive rather than mutually exclusive.

By examining these articulations of the Ganges as a matter of fact in light of the river's pollution and purity and the Tehri Dam, it is clear that the Ganges is engaged in crises of objectivity, wherein the strict bifurcation of reality into the house of nature and the house of society is becoming blurred and problematic. In this sense, the Ganges is being interpreted not as a risk-free matter of fact but as a risky matter of concern. It is to Latour's account of matters of concern that I now turn in order to better understand the ecological crises pervading the Ganges.

A Politics of Things

To show how the dichotomies characteristic of the modern Constitution are not mutually exclusive but are rather mutually constitutive, Latour uses the term "matters of concern," a term which circulates between matters of fact and matters of value.[196] To differentiate matters of concern from the matters of fact that appear in the modern Constitution, I discuss Latour's

[196] Latour, *Politics of Nature*, p. 24.

enumeration of four aspects of matters of concern in contradistinction to the four aspects of matters of fact. Furthermore, I show how matters of concern can be described in terms of "actors" or "things," with both of these terms connoting hybrids of natural and cultural representations. Following this discussion, I show how the Ganges can be represented as a matter of concern and not merely as a matter of fact, considering how the four points of matters of concern relate to issues regarding the pollution and damming of the Ganges.

1) Matters of concern are not like matters of fact in that they do not have the sort of clear and distinct boundaries found in Cartesian philosophy. Instead, matters of concern have fuzzy boundaries as they are intricately entangled with other beings, forming complex networks of relationships and creating rhizomes (i.e., those underground plants from which many shoots and roots come forth from multiple nodes).

2) The people involved in producing matters of concern are not hidden within a bicameral Constitution, but instead actively show themselves as integrally involved in the complex process of constructing facts. One can rephrase this second point by saying that matters of concern are as Bachelard says of facts: "*Les faits sont faits*" ("Facts are fabricated").[197] That is, human hands visibly take part in the creation of matters of concern.

3) Matters of concern are risky attachments that have many connections to various things within the world and do not act as if politics and nature exist in two mutually exclusive realms. In other words, Latour says the following: "No science can exit from the network of its practice."[198]

4**)** Unexpected consequences are known to be inevitable, and the definitions of matters of concern are continually changing as consequences arising from different experiments

[197] Qtd. in Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge: Harvard University Press, 1993), p. 18.
[198] Latour, *We Have Never Been Modern*, p. 24.

transform their meanings.

Latour makes the point that matters of concern require "experimental metaphysics"—a metaphysics that does not take for granted a pre-established articulation of nature, but is instead continually being articulated in new ways as more matters of concern arise.[199] Matters of fact are expressed with an approach to metaphysics wherein essences are always already determined and identities are "decisively entrenched" with defined meanings, leaving no room for negotiation.[200] With experimentation, metaphysics must not seek a "catholicity that wants to embrace everything" and understand beings in their "total connectivity."[201] In other words, with experimentation, the order and beauty associated with the Greek word *cosmos* "thus do not apply to the totality, but to the learning curve."[202] Tending to the learning curve, experimental metaphysics proceeds from any given state of affairs to a state that includes a greater number of things. In other words, experimental metaphysics proceeds from "a state *n* to a state *n* + 1."[203] That is to say, rather than being occupied with pre-established essences, experimental metaphysics is concerned with the habits of things that are continually transformed by the addition of other matters of concern ("n + 1").

One helpful example that Latour provides to distinguish between essences and habits is that of "toadways." He tells how "ethologists specializing in toads transformed the mores of these creatures into disputable essences" when these scientists persuaded highway builders to create "toadways"— hollow passageways within roads that would allow toads to return to the pond of their birthplace in order to lay their eggs.[204] After these costly toadways were built to

[199] Latour, *Politics of Nature*, pp. 123, 241-242.
[200] Ibid., p. 215; cf. p. 86.
[201] Ibid., p. 199.
[202] Ibid.
[203] Ibid., cf. p. 207.
[204] Ibid., p. 87.

comply with the "essential nature" of toads to return to a primal pond, the ethologists discovered that the toads were quite content to lay their eggs at another pond nearby, refusing to travel through the expensive and dangerous toadways. Thus, what was thought to be a fixed essence of toads (laying eggs at the pond of their birthplace) was transformed into a new habit (laying eggs at a nearby pond) when the situation called for the toads to act in a more convenient manner.

In light of this concern for habits as opposed to essences, experimental metaphysics (as the etymology of "experiment" suggests) involves "'passing through' a trial and 'coming out of it' in order to draw its lessons."[205] In other words, this type of metaphysics does not claim to have definitive knowledge of things from the outset, but instead depends upon a learning curve wherein past experiments do not provide conclusive truth, but rather prepare for further experiments that will help articulate a more intricate account of things. Whereas the metaphysics that articulates a nature already unified is associated with procedures of representations that are always in a hurry to essentialize, an experimental metaphysics is indicative of procedures of representations that take a much slower approach, articulating things through due process.[206] "The metaphysics of nature prevented the slow exploration of experimental metaphysics."[207]

Accounting for the experimental metaphysics involved with matters of concern leads to an alternative to the bicameral Constitution of modernity. Instead of continuing to uphold and abide by the modern Constitution wherein the house of nature and the house of society are short-circuiting each other through univocal claims to reality, it is possible to redraw the Constitution so that we can listen to and take into account the representatives of the ever-increasing number of matters of concern. This way matters of concern can be better represented through a politics that works not toward the bifurcation of reality, but toward "*the progressive composition of the*

[205] Ibid., p. 195.
[206] Ibid., pp. 199-201.
[207] Ibid., pp. 200-201.

common world."[208]

Latour argues that instead of perpetuating the bicameralism of the modern Constitution, we need to form a new Republic, a *res publica* wherein every "public thing" can emerge within a common world represented through due process.[209] That is to say, the objects and subjects of the modern Constitution need to be interpreted as "things." In his introductory essay of the work *Making Things Public* titled "From Realpolitik to Dingpolitic or How to Make Things Public," Latour explains that the archaic sense of 'thing' (German *Ding*) is an 'assembly,' 'meeting,' or 'gathering.'[210] By being concerned with the etymology of 'thing,' Latour notes Martin Heidegger, who wrote, "Gathering or assembly, by an ancient word of our language, is called 'thing.'"[211] Latour recognizes that his rejuvenation of this old etymology of 'thing' is ironic, insofar as it extends the meaning of thing as 'gathering' beyond the romantic jugs and bridges of which Heidegger speaks, to include all manner of assemblages (e.g., scientific and technological objects, financial institutions, popular culture).[212]

To better understand the new Republic that can replace the modern Constitution, it is helpful to consider some more examples of articulations of a thing. The meaning of a thing is taken up in Gisli Palsson's essay titled "Of Althings!"[213] Here the Icelandic word *ping* is explored, a multivalent word that can be translated as "object, assembly, country, court, gathering, festivity, love affair and sexual organ."[214] In 930AD, approximately fifty-six years after the settlement of Iceland, what is often considered to be one of the earliest democratic

---

[208] Ibid., p. 18.
[209] Ibid., p. 54.
[210] Bruno Latour, "From Realpolitik to Dingpolitik, or How to Make Things Public," in *Making Things Public: Atmospheres of Democracy*, eds. Bruno Latour and Peter Weibel (Cambridge: MIT Press, 2005), p. 22.
[211] Martin Heidegger, *Poetry, Language, Thought*, trans. Albert Hofstadter (New York: Harper & Row, 1971), p. 153; cf. p. 174. Cf. Latour, "From Realpolitik to Dingpolitik," p. 22.
[212] Latour, "From Realpolitik to Dingpolitik," p. 23.
[213] Gísli Pálsson, "Of Althings!" in *Making Things Public: Atmospheres of Democracy*, eds. Bruno Latour and Peter Weibel (Cambridge: MIT Press, 2005), p. 250-257.
[214] Ibid., p. 250.

national governments was established, called *Alping* or *Althing*. The *Althing* served as a legal institution wherein local leaders and their supporters (*thingmenn*) could peacefully resolve disputes.[215] According to the medieval document by Ari the Learned entitled *Book of the Icelanders*, this parliament assembled annually for a two-week period around the time of the summer solstice. Bringing together representatives from all of Iceland, the *Althing* met in the southwest part of the country, at Thingvellir (a place that can be translated as "the ground for things" or "parliament plains"), which is located at the Mid-Atlantic Ridge, the fault line where the North American and Euroasian tectonic plates meet.[216] This site, now a national park, is a place where many important events in Icelandic history have happened, as the *Althing* convened from 930 (thus signifying the beginning of the Commonwealth Period) to 1798. Recently this site has been added to the UNESCO World Heritage List.[217]

Another example of a thing is considered in Angela Zito's essay entitled "Things Chinese: On wu."[218] Here the etymology of *wu* is investigated. Zito reveals that in the divinatory oracle bones of the Shang period (1760-1122BCE), the Chinese character was complex, partially comprised of the character for "oxen," and it denoted "the mottled color of an animal."[219] By the second and first centuries BCE, the character had transformed from an adjective to a noun, meaning "piebald-oxen," and sometimes it was cognate with *wen*, meaning 'streaks,' 'ornamented,' 'writing,' 'literature,' and 'culture,' and sometimes cognate with *shi*, meaning 'affair' and 'event.'[220] Its place within the opening of Laozi's *Daode jing* as *wanwu* can be translated as "the 10,000 (disorganized, chaotic, infinitely various) things (that comprise

[215] Ibid., p. 252.
[216] Ibid., p. 250.
[217] Ibid.
[218] Angela Zito, "Things Chinese: On *wu*," in *Making Things Public: Atmospheres of Democracy*, eds. Bruno Latour and Peter Weibel (Cambridge: MIT Press, 2005), pp. 290-291.
[219] Ibid., p. 290.
[220] Ibid.

the world)."[221] According to Zito, the Chinese etymology of *wu* "inevitably harbors a sense of objects, creatures, people and events all assembled together. It conveys a sense of relationships happening among them all in a cosmos of constant birth and rebirth."[222] Like the *Althing*, *wu* is not an object in the sense of a matter of fact, but is rather a gathering of a network of representations.

When explaining the meaning of a thing as an assembly in *Politics of Nature*, Latour speaks of a "collective," in the sense of "'collecting' the multiplicity of associations of humans and nonhumans, without resorting to the brutal segregation between primary qualities and secondary qualities."[223] In other words, Latour is attempting to move beyond the two houses of the modern Constitution to a single collective of the new Republic. By evoking the collective, he is largely evoking "the *work* of collecting into a whole," as it brings to mind the work of "sewage systems where networks of small, medium, and large 'collectors' make it possible to evacuate waste water as well as to absorb the rain that falls on a large city."[224] This sewage system metaphor is helpful in understanding the collective, in that it depicts a very elaborate network of humans and nonhumans who work together toward the common goal of gathering waste water and rain.

Another synonym for 'thing' to which Latour refers is 'actor' (also called an 'actant,' 'acting agent,' or 'intervener').[225] Every human and nonhuman member within the collective is an actor in that it acts in such a way as to affect others members within the collective. This basic way of participating in the collective by affecting other collective members is the only known

[221] Ibid.
[222] Ibid.
[223] Latour, *Politics of Nature*, p. 55.
[224] Ibid., p. 59.
[225] Ibid., pp. 79, 237.

characteristic of actors. In this way, Latour notes that actors are matters of concern, entangled in networks of complex relations between humans and nonhumans.[226]

Unlike the certain determined relationships held between subjects and objects, actors have an endless array of relationships formed by their actions. The ever-increasing number of relationships between actors provides the opportunity to add innumerably more actors to the list of members within the collective, rather than representing actors in a collective already constituted of things that are *either* subjects *or* objects.[227] Accordingly, Latour argues that a third certainty should be added to Mark Twain's declaration that what is certain in life is death and taxes, the certainty that "tomorrow the collective will be more intricate than it was yesterday."[228] As noted above, experimental metaphysics moves from "a state *n* to a state *n* + 1."[229] This formula of "n + 1" describes how more matters of concern will continually arise within the collective. In other words, there is always more within the collective that needs to be taken into account.

Latour further explains that a collective is "an assembly of beings *capable of speaking.*"[230] In the modern Constitution, scientists alone have a privileged access to the objective meanings of matters of facts, and thus scientists speak directly for the things. In the collective, nobody has immediate access to the meaning of a thing, and thus people can only articulate things through slowly, through an intermediary capacity of speech. In other words, in a collective, people speak about things with "a great number of *speech impedimenta.*"[231] These impedimenta are procedures of representation. Whereas in the modern Constitution, scientific

[226] Ibid., p. 75.
[227] This does not mean that objectivity has no place in a collective. This is only to say that things are never mere objects, but are more like "quasi-objects," hybrids that take place between humans/culture and nonhumans/nature. Latour, *We Have Never Been Modern*, pp. 51-55.
[228] Latour, *Politics of Nature*, pp. 191-92.
[229] Ibid., p. 199; cf. p. 207.
[230] Ibid., p. 62.
[231] Ibid., pp. 62-63.

truth silences politics and value through the articulation of the objective presence of things, in composing the collective, the procedures undertaken from scientific (as well as political or religious) perspectives work toward collecting representations of things. In other words, scientists within the collective can participate in the representation of reality instead of short-circuiting representational procedures with claims of a privileged access to the objective truth of nature. This does not mean that there is no external nature and that everything is socially constructed; rather, it means that nature and indeed all reality belong in the collective only through representation. With this in mind, Latour proposes "not the simple slogan of the early democracies – 'No taxation without representation' – but a riskier and more ambitious maxim – 'No reality without representation!'"[232]

In short, a thing does not short-circuit political discussions as objects and subjects do by setting up a divided world; instead, a thing brings representatives together with the intention of arriving at a common agreement. Moreover, an account given by any representative is not to be taken as final, total, conclusive, or certain. In the new Republic, one is circumspect with those who speak for things: "as is the case with all spokespersons, *we have to entertain serious but not definitive doubts* about their capacity to speak in the name of those they represent."[233] Accordingly, common agreements are reached in the new Republic with speech impedimenta through processes of representation that account for the uncertainty of things, the uncertainty which is an "inevitable ingredient of crises in the environment and in public health."[234]

One could object to this positing of inevitable uncertainty of things by arguing that there is indeed some modicum of certainty in ecological crises. This hypothetical objector might suggest that it is indubitably certain that we should protect nature or promote sustainability.

[232] Ibid., p. 127; cf. p. 222.
[233] Ibid., pp. 64-65.
[234] Ibid., p. 63.

However, the tangled networks of matters of concern leads Latour to argue that slogans such as "Let us protect nature!" are inadequate, as they suppose that natural things are unattached to cultural concerns. Rather than being certain that sustainability and environmental protection are tenable responses to ecological crises, a slogan that takes into account the crises of objectivity would embrace uncertainty and say, "No one knows what an environment can do…"[235] In the same way, we can articulate a slogan for the waters of the Ganges that says "No one knows what the Ganges can do…" In this sense, the river Ganges is being interpreted not as a risk-free matter of fact but as a thing, a risky matter of concern.

The Ganges River as a Thing

By articulating ways in which the Ganges is being represented as a matter of concern, one can better understand what is currently happening with the polluting and damming of the river. It is helpful to bear in mind Latour's enumeration of the four criteria of matters of concern: 1) the boundaries of matters of concern are rhizomatic and intricately entangled (not clear and distinct); 2) those who articulate matters of concern do not hide out of sight thereafter, but rather affirm the dictum of Bachelard ("*Les faits sont faits*"); 3) as risky attachments, matters of concern occur with their unexpected consequences and impedimenta entwined in networks, rather than being divided into the houses of the bicameral Constitution; and 4) instead of having an unchanging essence detached from risky social issues, matters of concern have habits that can be articulated by experimental metaphysics that takes into account the unexpected consequences of its rhizomatic entanglements.

It is evident that the Ganges is currently being interpreted as a matter of concern by such representatives as Veer Bhadra Mishra and others within the Clean Ganga Campaign:

[235] Ibid., p. 80; cf. p. 197.

1) Mishra does not attempt to say that the Ganges can be defined according to clear and distinct boundaries, but instead articulates the purity and pollution of the river in terms of intricately woven boundaries of religious, scientific, and political concerns. For example, he and others within the Clean Ganga Campaign articulate the Ganges as a sacred and pure river that is ecologically polluted, arguing that public awareness and political action are an integral part in cleaning the river.

2) Mishra visibly presents himself as being intricately connected with the river. For example, as the head of the campaign, Mishra is publicly known for both his leadership as priest of the Sankat Mochan Temple in Banaras, as well as for many years being employed by Banaras Hindu University as Head of the Department of Civil Engineering. Thus, he does not make invisible his religious and scientific affiliations; in fact, he publicly promotes a sort of syncretism of science and Hinduism.

3) Mishra represents the river together with all of its risky attachments. Although he accepts as valid the scientific determinations of the purity and pollution of the Ganges, he does not appropriate the facts of science into a bicameralism that would essentialize the river and detach science from the unexpected concerns of religion and politics.

4) Thus, Mishra's approach to representing the Ganges is similar to an experimental metaphysics insofar as he does not posit an unchanging essence of the river but instead continually makes public different representations of the river as they are revised in political, scientific, or religious discourse and practice.

Another example wherein the Ganges is being interpreted as a matter of concern can be seen in light of protest movements against the Tehri Dam:

1) Sunderlal Bahuguna and others working within the TBVSS articulate the Ganges River

according to a complex network of relationships between religion and science. Bahuguna does not articulate the Ganges as a clearly defined natural object opposed to cultural values, but instead as a rhizomatic thing that gathers together representations from various perspectives. In protesting the Tehri Dam, Bahuguna calls upon Hindu myths (such the Ganges' decent to earth through the protective locks of Shiva's hair), scientific facts (such as the statistical risks of the dam being built on a fault line), and social concerns (such as the displacement of 70,000 to 100,000 people.)

2) Bahuguna is making public that his use of scientific facts in representing the Ganges is intertwined with his own perspective, which is embedded in a specific religious context. The visibility of his religious affiliation makes his articulation of the Ganges one with risky attachments and not one of detached objectivity. Indeed, Bahuguna's public declaration of the importance of the Hindu relationship to the Ganges has brought some people to associate him with the intolerant politics of Hindu nationalism.

3) Bahuguna represents the Ganges while taking into account the unexpected problems arising with the damming of the river. For instance, he does not attempt to relegate the displacement of people into a mere social issue; rather, he includes the concerns of those being displaced in his protests against the Tehri Dam. For Bahuguna, the river is not detached from unexpected concerns, but is rather a risky attachment that is represented in the concerns of many perspectives (e.g., displaced people, Hindu myths, scientific data).

4) Bahuguna's articulation of the Ganges is not essentializing but is continually taking into account the unexpected consequences of the experiment of the Tehri Dam project. One could thus say that Bahuguna practices something like an experimental metaphysics that is always assembling more representations of the Ganges.

From what has been said, it is evident that at least in some cases, the Ganges is currently being interpreted as a matter of concern, thus avoiding the impasses of the bicameral Constitution of modernity. This does not mean, however, that the political process is being expedited with such a politics of things. Rather, this approach to politics slows down the process of representation, multiplying risky attachments and unexpected consequences through the observance of due process. Although a politics of things does not by any means eliminate problems occurring with the waters of the Ganges—pollution is still occurring and the Tehri Dam is completed and functioning—such a politics nevertheless has the ability to respond to ecological crises without being short-circuited by Science or by any other essentializing discourse or practice.

CONCLUSION

This thesis has articulated a philosophy of water by considering what is currently happening with the Ganges River. In exploring the ecological crises occurring with the pollution and damming of the Ganges, I have shown how some representations of water short-circuit due process by propagating the nature/culture opposition characteristic of modernity, and how other representations of water promote democratic due process by articulating the Ganges as a thing, circulating references between nature and culture. The purpose of this investigation has not been to demonstrate the validity of Latour's political philosophy. Instead, I have appropriated Latourian language insofar as it is useful in articulating the networks of references that gather together natural and cultural representations of the Ganges.

Although water is represented throughout the history of philosophy in thinkers like Thales, Lao Tzu, Dogen, Bachelard, and Illich, philosophy is relatively new to the ecological crises calling for a politics of things. With such a politics of things, references circulating between nature and culture take an active role in philosophy. A politics of things is not merely social, nor does it affirm a mononaturalism. Instead, it can be described as a political ecology, which does not short-circuit the due process that works toward the progressive composition of the collective, but rather makes possible a slow and deliberate constitution of a collective through the multiplication of risky attachments of matters of concern. Latour summarizes the goal of political ecology with this simple motto: "Represent rather than short-circuit."[236]

In a politics of things, scientific representations of the pollution and damming characteristic of the ecological crises occurring along the Ganges are not taken from a natural sphere that excludes (and is excluded from) the shadowy appearances of society. Rather, sciences are brought into democracy as they circulate references between nature and culture in an

[236] Ibid., p. 126.

effort to articulate more intricate representations of matters of concern.

Following due process, scientific representations of the purity of water circulate references so that they take into account ways in which this purity is a matter of concern for Hindus or other social groups. In addition, religious representations no longer appropriate scientific representations as matters of fact, but instead, references about purity circulate between religious and scientific representations so as to contribute to a more intricate articulation of the river. Likewise, following due process, the development of the Tehri Dam would not privilege economic representations of the viability of the dam to the exclusion of any conflicting religious or scientific representations. Instead, the viability of the Tehri Dam would be represented by circulating references between all parties for whom this dam is a concern, including displaced peoples, religious traditions that consider the river to be sacred, scientists (regardless of whether they are for or against the project), and corporations that are financially invested in the project.

This movement from a bicameral politics to a politics of things is part of what can be described more generally as a philosophy of water. This philosophy includes not only a political ecology, but also an experimental metaphysics and an epistemology that contribute to the progressive composition of the world. This philosophy of water proceeds without the interference of metaphysicians who posit a nature already unified and essentialized and without epistemology police who keep social and political concerns in the shadows of the bicameral cave. Within this philosophy of water, the Ganges River is not reduced to a mere object but is instead allowed to participate as an actor in the processes of representation. Such representations of the waters of the Ganges are articulated by Veer Bhadra Mishra in his work against the pollution of the Ganges and by Sunderlal Bahuguna in his protests against the Tehri Dam. Furthermore, Latour himself has facilitated representations of water as a thing in "local

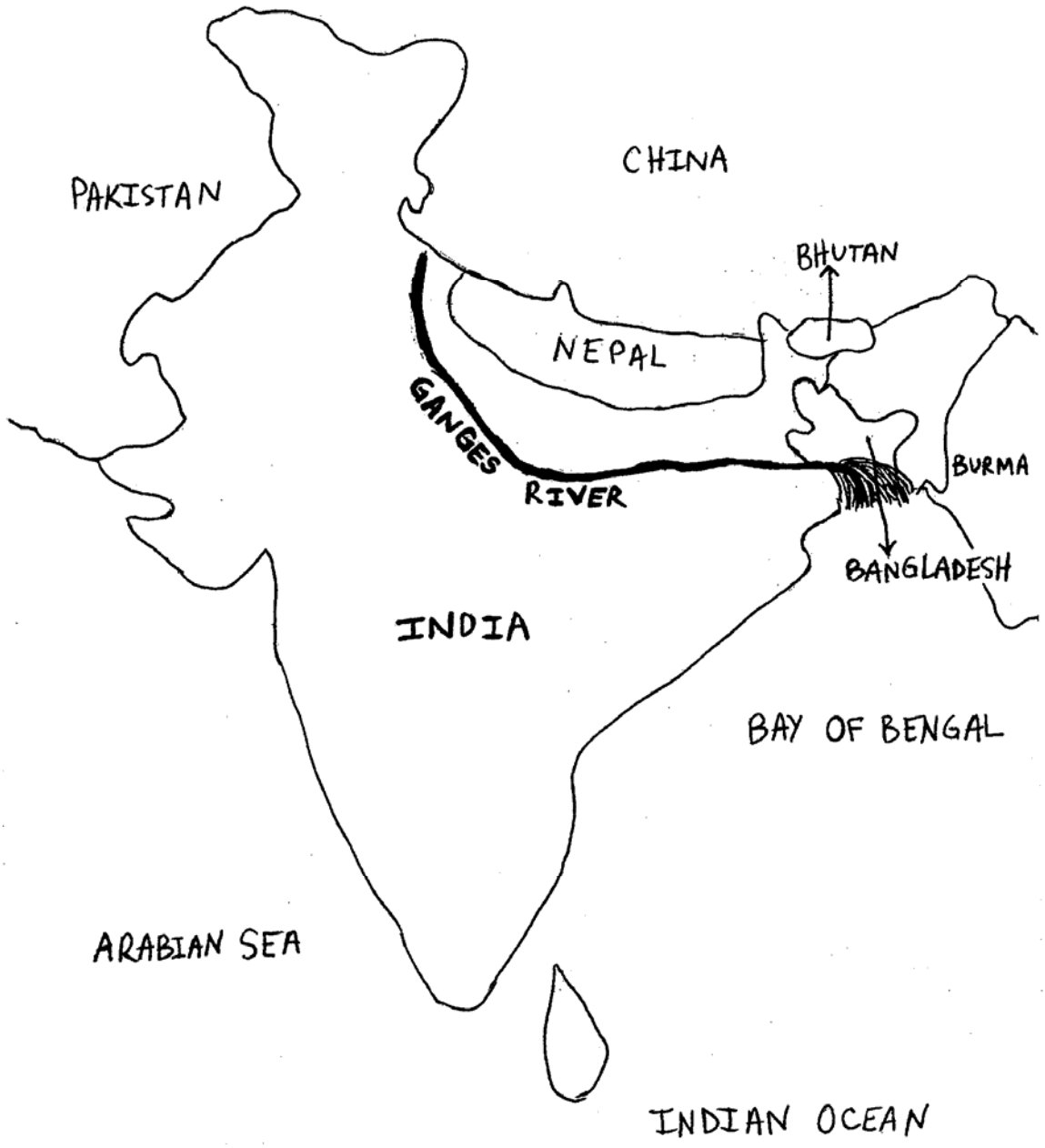
parliaments on water" (or "local water commissions"), wherein representatives from public and private sectors gather to make plans for shared water use of various water catchments in France.[237] In all of these cases, water is not some passive object to be taken for granted; rather, here water plays an active role in philosophy.

[237] Ibid., pp. 174, 260 fn. 1, 274 fn. 26. Latour has worked with parliaments of water with Jean-Pierre Le Bourhis, who describes this work in "Water Parliaments: Some Examples," in *Making Things Public: Atmospheres of Democracy*, eds. Bruno Latour and Peter Weibel (Cambridge: MIT Press, 2005), pp. 482-485.

APPENDIX

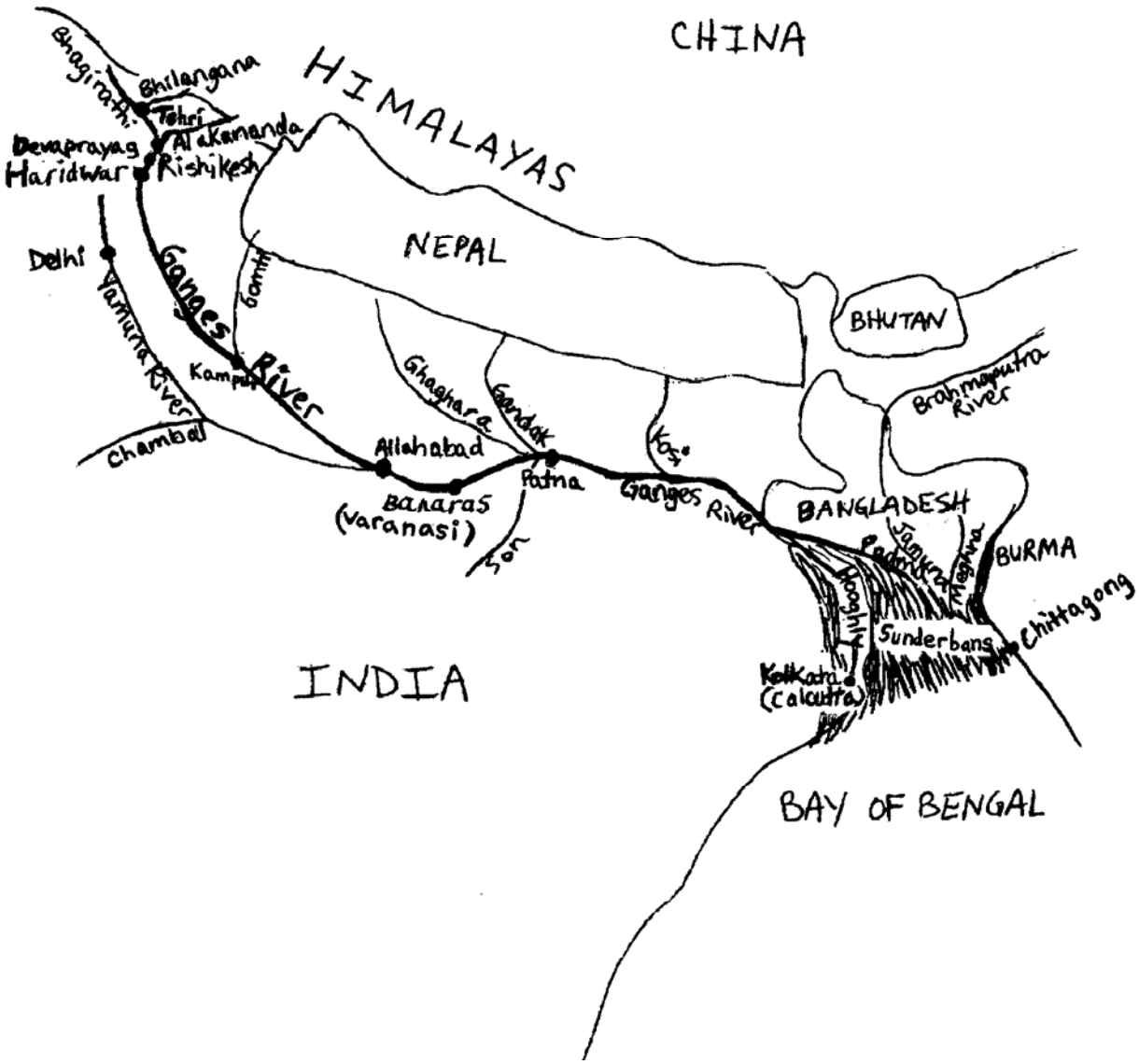
MAPS OF INDIA AND GANGES RIVER

Map of India and Surrounding Regions



Not drawn to scale. Rendered by author.

Map of the Ganges River



Not drawn to scale. Rendered by author.

REFERENCES

Agarwal, Anil. "Human-Nature Interactions in a Third World Country." In *Ethical Perspectives on Environmental Issues in India*, ed. George A. James, pp. 31-72. New Delhi: A.P.H. Publishing Corporation, 1999.

Alley, Kelly D. "Idioms of Degeneracy: Assessing Ganga's Purity and Pollution." In *Purifying the Earthly Body of God: Religion and Ecology in Hindu India*, ed. Lance E. Nelson, pp. 297-330. Albany: State University of New York Press, 1998.

------. "Separate Domains: Hinduism, Politics, and Environmental Pollution." In *Hinduism and Ecology: The Intersection of Earth, Sky, and Water*, eds. Christopher Key Chapple and Mary Evelyn Tucker, pp. 355-387. Cambridge: Harvard University Center for the Study of World Religions, 2000.

------. *On the Banks of the Ganga: When Wastewater Meets a Sacred River.* Ann Arbor: University of Michigan Press, 2002.

Alter, Stephen. *Sacred Waters: A Pilgrimage up the Ganges Rivers to the Source of Hindu Culture.* New York: Harcourt, Inc., 2001.

Aristotle. *Metaphysics*. Translated by Joe Sachs. Santa Fe: Green Lion Press, 1999.

Bachelard, Gaston. *Water and Dreams: An Essay on the Imagination of Matter*. Translated by Edith R. Farrell. Dallas: The Dallas Institute of Humanities and Culture, 1983.

Barlow, Maude and Tony Clark. *Blue Gold: The Fight to Stop the Corporate Theft of the World's Water*. New York: The New Press, 2002.

Carvalho, Nirmala. "Landslide Near Tehri Dam Construction Site Kills at least 29 People." AsiaNews.it. August 2004. http://www.asianews.it/view.php?l=en&art=1249 [accessed 7/31/06]

Chan, Wing-Tsit, Editor and Translator. *A Source Book in Chinese Philosophy*. Princeton University Press, 1963.

Choudhary, Shubhranshu. "The Ganga Could Run Dry…" *The Hindu*, 2005. http://www.hindu.com/mag/2005/10/09/stories/2005100900130200.htm [accessed 9/1/06]

Darian, Steven G. *The Ganges in Myth and History.* Honolulu: The University Press of Hawaii, 1978.

Descartes, René. *Meditations on First Philosophy*. Translated by Laurence J. Lafleur. New York: Macmillan Publishing Company, 1951.

De Villiers, Marq. *Water: The Fate of our Most Precious Resource*. Boston: Houghton Mifflin Company, 2000.

Diamandopoulos, P. "Thales of Miletus." *The Encyclopedia of Philosophy*. Volume 8. 1972 edition.

Dogen. "Mountains and Waters Sutra." *Moon in a Dewdrop: Writings of Zen Master Dogen*, ed. Kazuaki Tanahashi, pp. 97-107. New York: North Point Press, 1985.

Eliade, Mircea. *The Sacred and the Profane: The Nature of Religion*. Translated by Willard R. Trask. San Diego: Harcourt, Inc., 1987.

"Ganges Delta: Most Fertile Land for Growing Jute, Kenaf, Roselle Hemp Fibers." 2006. http://www.tradezone.com/tradesites/ganges_delta.html [accessed 8/25/06]

Ganguly, Meenakshi. "Veer Bhadra Mishra: Holy War for 'My Mother.'" Time.com Heroes of Our Planet Hero Gallery. August 16, 1999. http://www.time.com/time/reports/environment/heroes/heroesgallery/0,2967,mishra,00.html [accessed 4/5/06]

Ghose, N.C. and C.B. Sharma. *Pollution of Ganga River: Ecology of Mid-Ganga Basin*. New Delhi: Ashish Publishing House, 1989.

Gosling, David L. *Religion and Ecology in India and Southeast Asia*. London: Routledge, 2001.

"Harnessing the Law to Clean Up India: An Interview with M. C. Mehta." *Multinational Monitor* 16, no. 7 & 8 (1995). http://multinationalmonitor.org/hyper/mm0795.09.html [accessed 8/12/06]

Heidegger, Martin. *Poetry, Language, Thought*. Translated by Albert Hofstadter. New York: Harper & Row, 1971.

Illich, Ivan. *H_2O and the Waters of Forgetfulness*. Berkeley: Heyday Books, 1985.

International Rivers Network. "IRN Fact Sheet: Tehri Dam." (Oct. 22, 2002): pp. 1-4. http://www.irn.org/programs/india/021022.tehrifactsheet.pdf [accessed 2/15/06]

James, George A. "Tehri Dam." In *The Encyclopedia of Religion and Nature*, eds. Bron R. Taylor, Jeffrey Kaplan, Laura Hobgood-Oster, Adrian Ivakhiv, and Michael York, pp. 1626-1627. 2 vols. London: Thoemmes Continuum, 2005.

Kant, Immanuel. *Grounding for the Metaphysics of Morals with On a Supposed Right to Lie because of Philanthropic Concerns*. Translated by James W. Ellington. 3rd Edition. Indianapolis: Hackett Publishing Company, Inc., 1993.

Khagram, Sanjeev. *Dams and Development: Transnational Struggles for Water and*

Power. Ithaca: Cornell University Press, 2004.

Kinsley, David. "Learning the Story of the Land: Reflections on the Liberating Power of Geography and Pilgrimage in the Hindu Tradition." In *Purifying the Earthly Body of God: Religion and Ecology in Hindu India*, ed. Lance E. Nelson, pp. 225-246. Albany: State University of New York Press, 1998.

Klaver, Irene J. "Phenomenology on (the) Rocks." In *Eco-Phenomenology: Back to the Earth Itself*, eds. Charles S. Brown and Ted Toadvine, pp. 155-169. New York: SUNY Press, 2003.

------. "Stone Worlds: Phenomenology on (the) Rocks." In *Environmental Philosophy: From Animal Rights to Radical Ecology*," eds. Michael E. Zimmerman, J. Baird Callicott, Karen J. Warren, Irene Klaver, and John Clark, pp. 347-359. 4th Edition. Upper Saddle River: Pearson Education, 2005.

Lao Tzu. *Tao Te Ching*. Translated by Stephen Mitchell. New York: HarperPerennial, 1992.

Latour, Bruno. *We Have Never Been Modern*. Translated by Catherine Porter. Cambridge: Harvard University Press, 1993.

------. "Circulating Reference: Sampling the Soil in the Amazon Forest." In *Pandora's Hope: Essays on the Reality of Science Studies*, pp. 24-79. Cambridge: Harvard University Press, 1999.

------. *Politics of Nature: How to Bring the Sciences into Democracy*. Translated by Catherine Porter. Cambridge: Harvard University Press, 2004.

------. "From Realpolitik to Dingpolitik, or How to Make Things Public." In *Making Things Public: Atmospheres of Democracy*, eds. Bruno Latour and Peter Weibel, pp. 14-41. Cambridge: MIT Press, 2005.

Latour, Bruno and Peter Weibel. *Iconoclash: Beyond the Image Wars in Science, Religion, and Art*. Cambridge: MIT Press, 2002.

Le Bourhis, Jean-Pierre. "Water Parliaments: Some Examples." In *Making Things Public: Atmospheres of Democracy*, eds. Bruno Latour and Peter Weibel, pp. 482-485. Cambridge: MIT Press, 2005.

Locke, John. *An Essay Concerning Human Understanding*. Amherst: Prometheus Books, 1995.

Mawdsley, Emma. "The Abuse of Religion and Ecology: The Vishva Hindu Parishad and Tehri Dam." *Worldviews: Environment, Culture, Religion* 9, no. 1 (2005): 1-24.

McKirahan, Richard D. *Philosophy Before Socrates: An Introduction with Texts and Commentary*. Cambridge: Hackett Publishing Company, 1994.

Mukerjee, Amitabha. "The River Ganga (Ganges)." 1998. http://www.cse.iitk.ac.in/~amit/other/ganges.html [accessed 8/8/06.]

Nancy, Jean-Luc. *Being Singular Plural*. Translated by Robert D. Richardson and Anne E. O'Byrne. Stanford: Stanford University Press, 2000.

Narayanan, Vasudha. "Water, Wood, and Wisdom: Ecological Perspectives from the Hindu Traditions." *Daedalus* 130, no. 4 (2001): 179-206. http://www.amacad.org/publications/fall2001/narayanan.aspx# [accessed 1/31/06]

Palsson, Gisli. "Of Althings!" In *Making Things Public: Atmospheres of Democracy*, eds. Bruno Latour and Peter Weibel, pp. 250-257. Cambridge: MIT Press, 2005.

Pearce, Fred. "Building a Disaster: The Monumental Folly of India's Tehri Dam." *The Ecologist* 21, no. 3 (1991): 123-128.

Plato. *The Republic of Plato*. Translated by Allan Bloom. 2nd Edition. Basic Books, 1991.

Postel, Sandra. *Pillar of Sand: Can the Irrigation Miracle Last?* New York: W.W. Norton and Company, 1999.

Postel, Sandra and Brian Richter. *Rivers for Life: Managing Water for People and Nature*. Washington: Island Press, 2003.

Sankat Mochan Foundation. http://members.tripod.com/sankatmochan/index.htm [accessed 3/15/06]

Shiva, Vandana. *Staying Alive: Women, Ecology and Development*. London: Zed Books, 1989.

------. *Water Wars: Privatization, Pollution, and Profit.* Cambridge: South End Press, 2002.

------. *Earth Democracy: Justice, Sustainability, and Peace.* Cambridge: South End Press, 2005.

Singh, Satyajit. *Taming the Waters: The Political Economy of Large Dams in India*. Delhi: Oxford University Press, 1997.

Sinha, Upendra Kumar. *Ganga Pollution and Health Hazard.* New Delhi: Inter-India Publication, 1986.

Smart, Ninian. *The Phenomenon of Religion*. New York: Seabury Press, 1973.

Tyberg, Judith M. *The Language of the Gods: Sanskrit Keys to India's Wisdom.* Los Angeles: East-West Cultural Centre, 1976.

Walker, Benjamin. *The Hindu World: An Encyclopedic Survey of Hinduism*. 2 volumes. New

York: Frederick A. Praeger, Inc., 1968.

Ward, Diane Raines. *Water Wars: Drought, Flood, Folly, and the Politics of Thirst*. New York: Riverhead Books, 2002.

Zito, Angela. "Things Chinese: On *wu*." In *Making Things Public: Atmospheres of Democracy*, eds. Bruno Latour and Peter Weibel, pp. 290-291. Cambridge: MIT Press, 2005.